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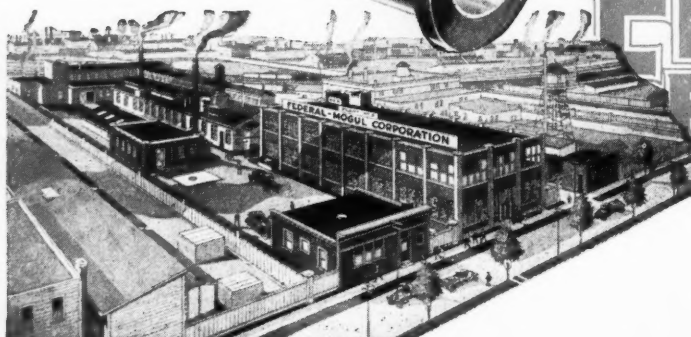
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With over 150 automotive manufacturers specifying Federal-Mogul Bearings as standard equipment, with the demand still growing for Federal-Mogul products, and with the expansion program which has been followed during the last few years, Federal-Mogul has stepped still further ahead as the leaders in Engine Bearing manufacture.

Production during the first quarter of this year was 4,150,000 pieces, against 3,750,000 in the first quarter of 1926, and 2,500,000 in the first quarter of 1925. This compares with an automobile production of 828,874 in the first quarter of 1927, 1,018,272 for the same period in 1926, and 802,020 for the first quarter of 1925.

A new factory addition, together with changes and additional equipment in plants No. 1 and No. 2, give the Federal-Mogul Corporation the additional capacity necessary to meet the constantly growing demands of its customers.

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Your Reputation is Safe with
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Engine Bearing Manufacturers.

Successful Transoceanic Flights Boom Airplane Sales

*Demand stimulated by achievements of Lindbergh and others
overtakes capacity of factories. No serious reaction
felt yet from failures which have followed.*

By Norman G. Shidle

THE successful transoceanic flights of 1927, headed by the Lindbergh, Byrd and Chamberlin achievements, have stimulated a public interest in aviation which is being reflected, not only in that brand of curiosity which greets a circus or a hippodrome stunt, but also in a practical desire on the part of Mr. Public to try out this new form of transportation himself and to buy him an airplane for his own use.

Specific facts and figures just collected by *Automotive Industries* bear out this conclusion so strongly as to leave little doubt about its general truthfulness despite the unquestioned damper which has been put on that enthusiasm by the multitude of disasters which have been following so closely on the tails of the original successes.

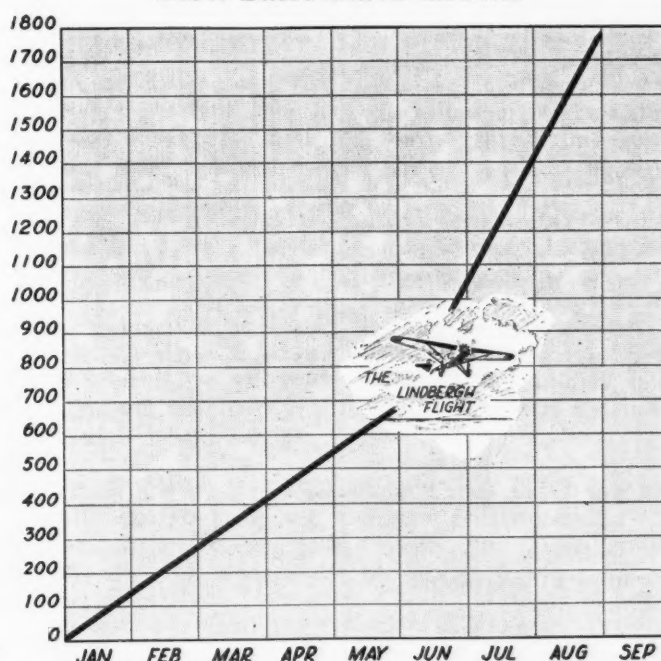
Whether or not the adverse effects of the unsuccessful flights will entirely offset the vividly favorable ones generated immediately following Lindbergh's performance can hardly be judged with accuracy at this moment. It certainly is within the bounds of hope, however,

that the current pressure against further foolhardy attempts will result at least in a diminution of such stunt efforts and thus permit the public mind to focus again on the more fundamental aspects of aviation.

It is worth remembering, too, that while stunt flights are failing every few days, Lindbergh himself is continuing to tour the country safely in the "Spirit of St. Louis" and thus is providing an outstanding and continuous demonstration of the practical safety of airplane travel under proper conditions and with proper objectives.

Thus far, the investigation just completed would indicate, the good effects of the 1927 flights have far outweighed the bad, even reports coming in within the last few days indicating no strong buying reaction on the part of the public due to the unsuccessful flights. It is reasonable to believe, therefore, that, if further unfortunate flights can be avoided for the next year or so, the airplane industry as a whole still may hope to reap the marked financial and commercial returns which seem to have

How Sales Have Grown



This chart is based on the sales figures of the airplane manufacturers who replied to the *Automotive Industries* questionnaire. It shows that during the five months preceding the Lindbergh flight these particular manufacturers sold 675 planes, whereas they sold 1100 during the next three months.



Public interest in aviation has increased perceptibly since the day that Lindbergh completed his successful transoceanic flight, and most manufacturers of aeronautical equipment have been receiving more orders than they can fill

started to accrue to it since Lindbergh made his famous hop.

Certain it is that airplane manufacturers and distributors have been getting on a better business basis this year than ever before and that their volume in the last few months, generally speaking, has picked up considerably. The manufacture and sale of commercial airplanes—as distinct from the supplying of aircraft to Government departments—seems to have come out of its swaddling clothes during 1927 and to have assumed the stature of a going business.

Last year, it was estimated, there were something like 2000 commercial airplanes built in the United States. Detailed figures just received from nearly a dozen manufacturers of commercial planes—and only such planes are considered in the present analysis—indicate an average increase in output this year of something like 300 per cent. If the current experience of these typical firms were applied to the industry as a whole, then a total commercial airplane production of nearly 8000 would be indicated for the present calendar year. While that figure probably is a bit high, further reports from a good number of important airplane distributors in different parts of the country point to a total output for 1927 of certainly not less than 5000. The automobile business was being accounted a going industry around 1901 when its output wasn't much, if any, greater.

Study of Sales

Study of the sales and inquiry figures of airplane manufacturers and distributors by months seems to reflect rather clearly the stimulating effect on buying demand resulting from the intense general interest in the transoceanic flights.

Manufacturers and distributors report increases in inquiries since June 1 ranging from 25 to 1000 per cent,

the maximum figure, it is interesting to note, being given the builders of Lindbergh's plane. The average increase in inquiries reported by manufacturers was 214 per cent, and by distributors, 170 per cent.

And these inquiries have been turned into real business in a good number of cases. This is clearly shown by the fact that the manufacturers reporting sold nearly 1100 planes during the months of June, July and August as against only 675 during the preceding five months.

There are distinct evidences that the demand for planes in the last few months has grown so rapidly as to have caught many manufacturers unawares. A considerable shortage of planes to meet current requirements exists today at most airplane factories. The manufacturers themselves report such shortages, while distributors are even more emphatic in their statements that many more planes than are available could easily be sold right now. One airplane distributor in Indiana, for example, who has sold 40 planes since the first of this year, says, "We could have sold 10 more easily." Other typical dealers' and distributors' statements are:

"We have five orders in and will have to wait 60 to 90 days for delivery."

"Serious difficulty in getting planes. We have been forced to turn down at least two orders per week due to impossibility of getting planes."

"At least 50 orders have had to be declined owing to inability of factory to get faster production on new model brought out this spring."

"Can't get planes."

"Lost about 15 sales this year due to being unable to make deliveries."

"Now 15 deliveries behind."

"Yes! We have trouble getting planes. Could deliver five per week now when we are receiving one per week from factory."

Ninety per cent of the distributors replying to our queries, as a matter of fact, reported shortage in planes. That the condition is general at the factories is indicated also by the fact that the distributors quoted handle a wide variety of makes including Waco, Swallow, Eaglerock, Travel Air, Stinson, Standard, Aeromarine, Curtiss Oriole, Ryan and others.

Both factories and dealers are looking forward to a continuance of the good business experienced in recent months. Practically all of them expect material increases in airplane sales and production next year. If the plans of those replying to *Automotive Industries'* queries are carried out and if they may be considered typical of the industry as a whole, the number of commercial airplanes built in 1928 seems likely to mount well over the 10,000 mark.

But in addition to the trends of current business brought out by this survey, some interesting lights were thrown on other merchandising and distributing factors which gradually are taking shape in this growing airplane business.

Price Trend is Upward

Within the last year, for example, there has been a tendency toward higher rather than lower prices so far as the amount involved in the average airplane sale is concerned. This probably means, among other things, that there are fewer revamped and second-hand planes going through the dealers' hands and that standard, reputable models are taking their proper dominating position in the airplane marketing picture throughout the country.

The greatest sales, the survey indicates, came in planes selling between \$2,000 and \$3,000, the average selling price of the planes reported by the manufacturers and distributors replying being about \$2,700 for 1927 as compared with about \$2,250 for 1926.

It is interesting to note also that airplanes today are being sold almost entirely through established dealer and distributor organizations just as are automobiles. A large proportion of the planes being built today are going from the factories through dealers or distributors to the ultimate owners. Eight manufacturers, for instance, replying to the question, "What percentage of your output is sold through dealers or distributors?" gave the following replies: 100 per cent, 90 per cent, 10 per cent, 98 per cent, 87 per cent, 90 per cent, 50 per cent, 80 per cent.

A part of the remainder, of course, is sold to commercial air transport companies direct, a practice which might be considered comparable to fleet owner sales in the truck field. Less than 5 per cent of airplane sales today are being made, apparently, direct from the factory to the individual owner.

The question has been raised by some airplane executives lately as to whether the industry as a whole has been profiting in a commercial way as much as it might

from the recently aroused public interest in its product.

Obviously one important way in which better advantage could be taken of immediate conditions is in stepping up of production schedules to meet the existing demand for planes. This fact is pretty clearly recognized by most factory men and definite efforts are being made along these lines. There is a disposition to play safe, however, both as regards quality of product and in the possibility of overestimating the admittedly accelerated requests for planes.

From the standpoint of possible overproduction or overexpansion, conservatives are calling attention to past experiences of the automobile industry, pointing out that when demand exceeds supply there usually is a pyramiding of orders, so that the total demand looks larger than it really is. Moreover, this group thinks, the airplane business can and will grow on a sounder financial basis if huge investments aren't thrown in hurriedly to meet a demand which may not remain permanently at its present level, even though assured eventually of going far above it.

In answer to a question as to whether or not there is any way that dealers and manufacturers might cash in on the current public interest in aviation in addition to what already is being done, the following were among the suggestions made by manufacturers:

"Build enough ships to meet the demand."

"Increase production through more efficient manufacturing methods."

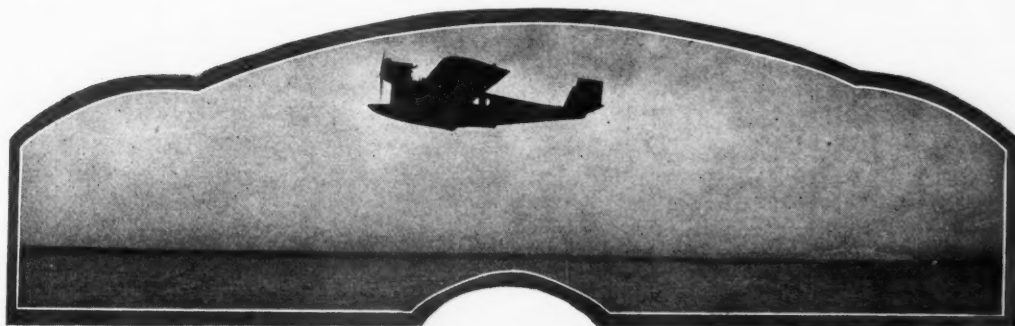
"Work along business lines and eliminate freak ideas."

"Use more road men—pilot salesmen."

"Take out part of the romance and sell transportation instead of just airplanes."

It is impossible to study over the general tendencies in current airplane selling and distribution and to get the different opinions of factory men or distributors about the various problems of this new business without sensing a strong resemblance as to problems and trends between the budding airplane industry and the automobile industry in its earlier days.

The vital need for readily available, efficient and properly organized service—scarcely recognized as a major consideration by the automobile industry for a good many years after its inception, is getting serious consideration as a part of airplane marketing at the very beginning. Effective sales and advertising methods, which the automobile business had to develop by cut and try methods through many years of harsh experience are already being appropriated and—with some adaptations—being incorporated into the early merchandising practice of the airplane business. Even these first specific investigations of merchandising conditions and marketing trends in the airplane industry reveal the fact that in many phases of business practice the two industries seem destined to proceed along somewhat similar courses.



4-Cylinder *Bean* Has *Ricardo* Head With Masked Inlet Valves

Dual induction tract from single carburetor, battery ignition, worm drive and quarter-elliptic rear springs are other features of new 14-40 hp. model.

By M. W. Bourdon

THE influence of H. Kerr Thomas, for many years with Pierce-Arrow in America, is evident in the design of a new British four-cylinder *Bean* chassis, the first new model to be produced by Harper-Bean, Ltd., since Mr. Thomas became managing director of this company 18 months ago. H. Ricardo has been associated with the design of the engine.

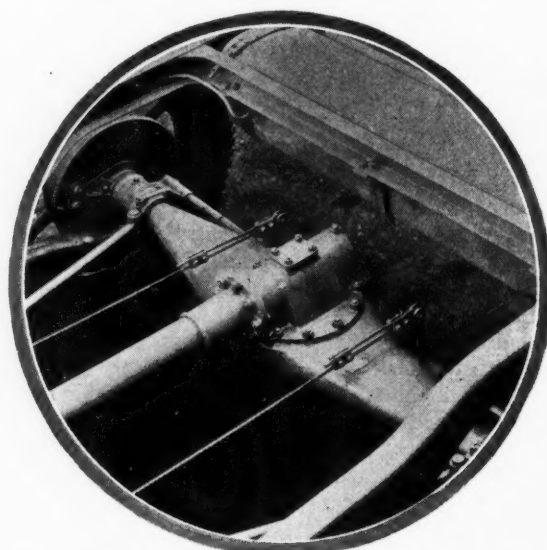
The new model displaces two earlier types, a 12 hp. and a 14 hp., and, being rated at 14-40 hp., has four cylinders with a bore and stroke of 75 x 130 mm. (2.95 x 5.12 in., 140 cu. in.).

The engine has side valves, and such features associated with Mr. Ricardo's name as turbulence-type combustion chambers, inverted-V piston crowns and masked inlet valves.

The compression ratio is 4.75 to 1. The pistons are of aluminum, the B.H.B. design being used in which the crown is a separate unit from the skirt, while the

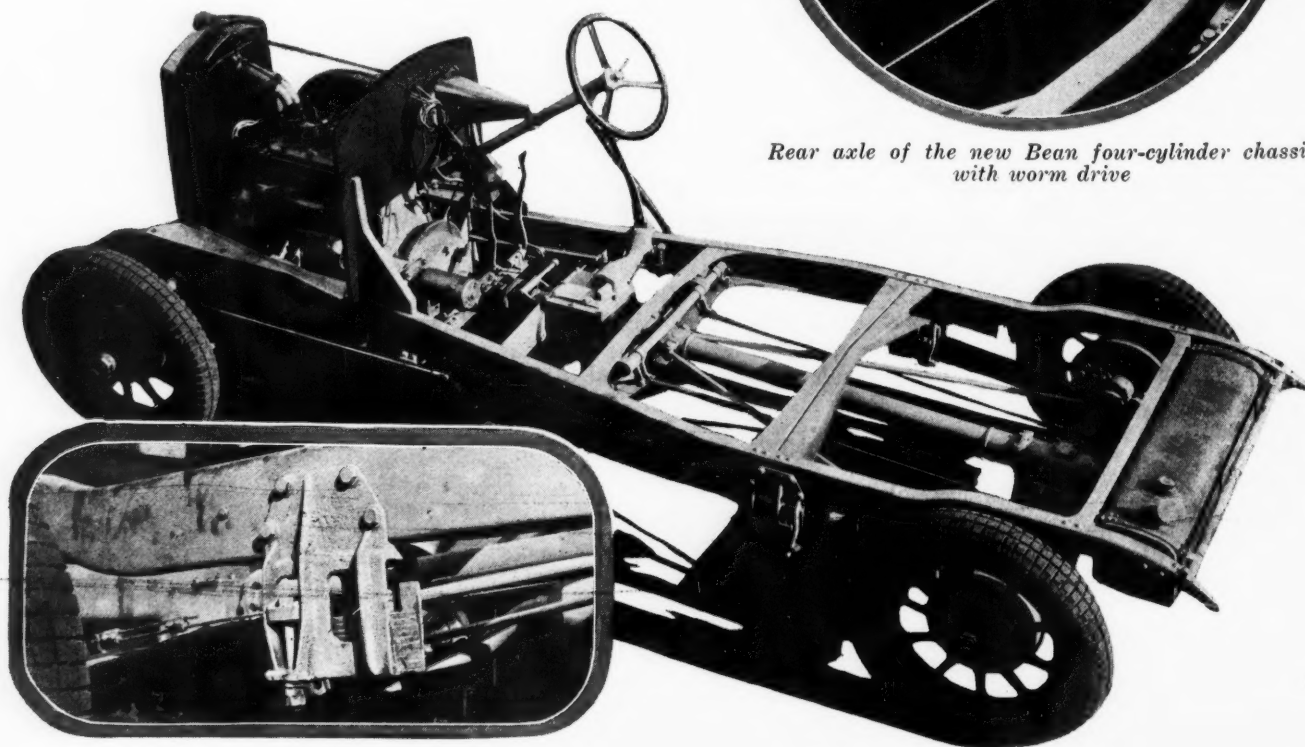
connecting rods are of duralumin. Contrary to usual British practice, battery ignition (Delco-Remy) has been adopted, though provision is made whereby a magneto can displace the distributor unit of the battery system; a magneto with its armature vertical is, in fact, shown in the accompanying drawing.

An unusual feature lies in the induction tract. From the carburetor on the right of the cylinder block to the valve ports on the left, the mixture passes through dual



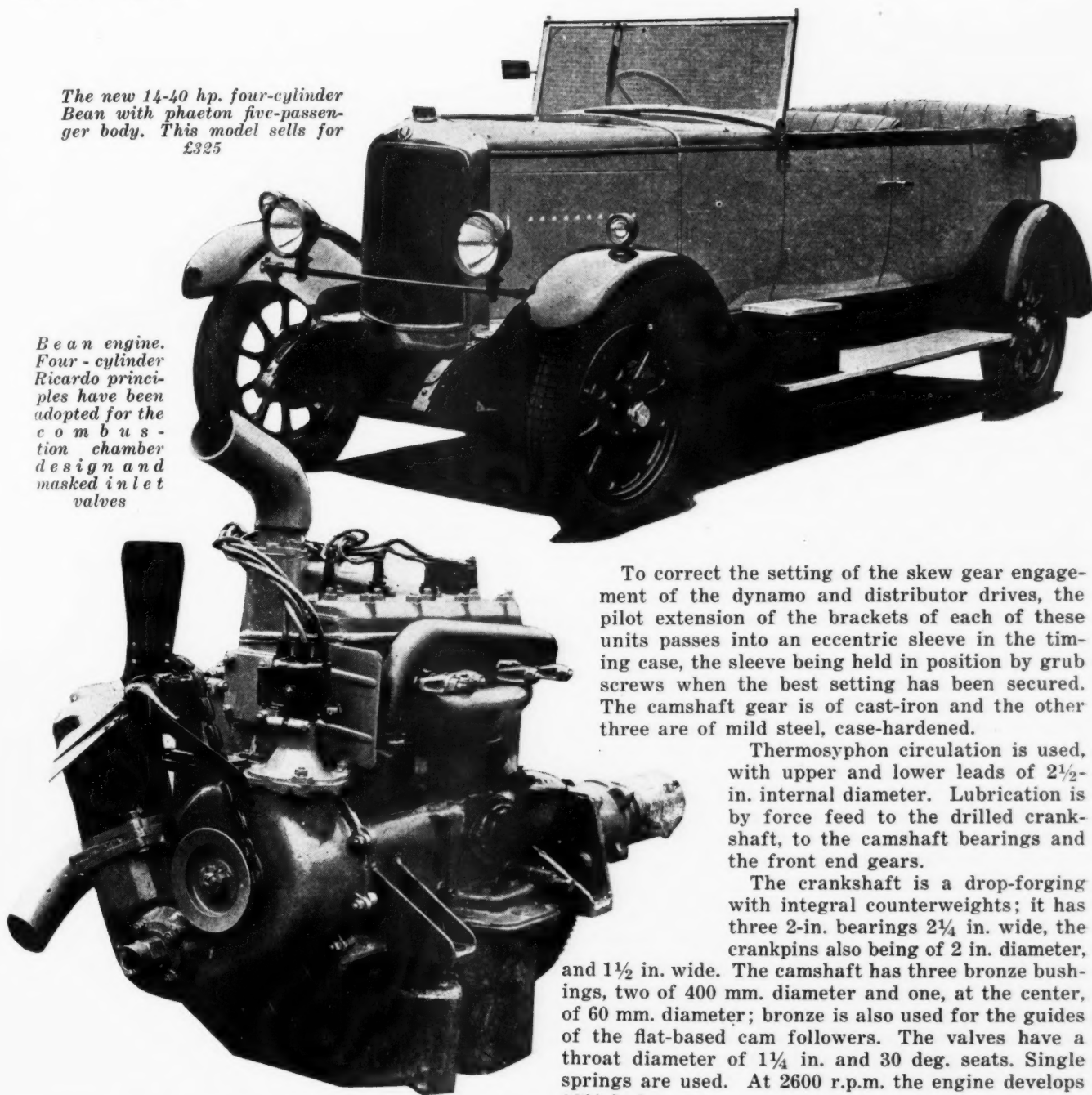
Below—14-40 hp. four-cylinder *Bean* chassis. Inset—Showing the unusual method of anchoring the butt ends of the rear quarter-elliptic springs

Rear axle of the new *Bean* four-cylinder chassis with worm drive



The new 14-40 hp. four-cylinder Bean with phaeton five-passenger body. This model sells for £325

Bean engine. Four-cylinder Ricardo principles have been adopted for the combustion chamber design and masked inlet valves



passages within the block, between the second and third cylinders, and thence by a two-branched dual manifold of cast aluminum. The upper of the two tracts runs to the second and third cylinders and the lower to the first and fourth. The carburetor is a Solex. The object of this arrangement, of course, is to secure uniform distribution. No hot-spot is provided, the mixture being warmed sufficiently by its passage through the center of the block, where there is an exceptionally wide water space.

The cylinder block is cast as a unit with the upper half of the crankcase, and the engine has an aluminum underpan and four-point suspension. The front gear casing is also of aluminum and is unusually wide, this being due to the use of four skew gears, two on the crankshaft and two on the camshaft. The second gear on the crankshaft drives the generator projecting at an angle from the right-hand side, and the second on the camshaft the vertical ignition distributor unit or the magneto on the right.

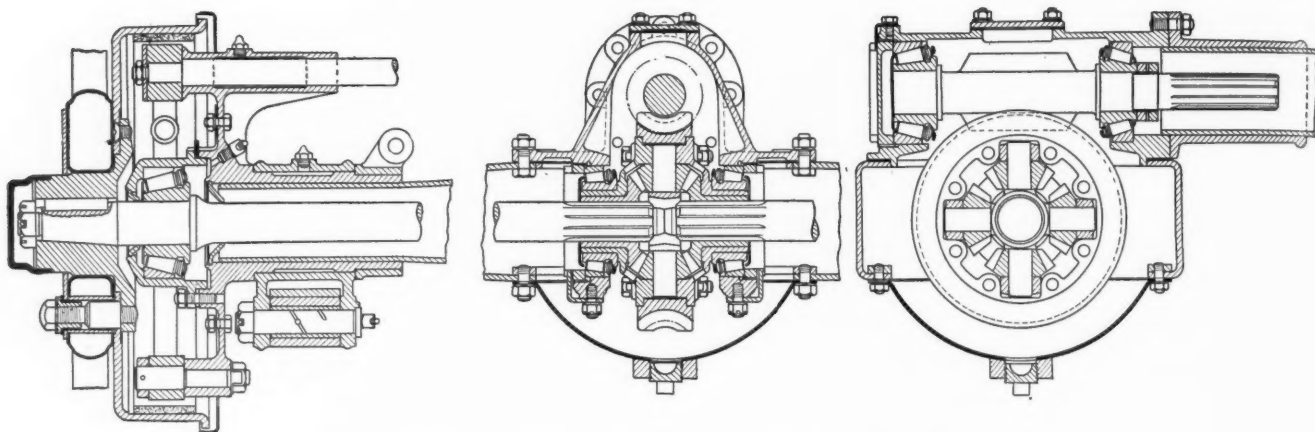
To correct the setting of the skew gear engagement of the dynamo and distributor drives, the pilot extension of the brackets of each of these units passes into an eccentric sleeve in the timing case, the sleeve being held in position by grub screws when the best setting has been secured. The camshaft gear is of cast-iron and the other three are of mild steel, case-hardened.

Thermosyphon circulation is used, with upper and lower leads of $2\frac{1}{2}$ -in. internal diameter. Lubrication is by force feed to the drilled crankshaft, to the camshaft bearings and the front end gears.

The crankshaft is a drop-forging with integral counterweights; it has three 2-in. bearings $2\frac{1}{4}$ in. wide, the crankpins also being of 2 in. diameter, and $1\frac{1}{2}$ in. wide. The camshaft has three bronze bushings, two of 400 mm. diameter and one, at the center, of 60 mm. diameter; bronze is also used for the guides of the flat-based cam followers. The valves have a throat diameter of $1\frac{1}{4}$ in. and 30 deg. seats. Single springs are used. At 2600 r.p.m. the engine develops $38\frac{1}{2}$ b. hp.

The flywheel is exceptionally narrow, consisting of a mere disk of steel $\frac{3}{4}$ -in. thick and 16 in. in diameter, with starter teeth on its rim. Nor is the rotating weight increased very much by the single-plate clutch casing, for the latter is an aluminum casting, carrying three exterior toggle levers. The six clutch springs are inclosed and non-adjustable.

The separate four-speed gearset, with a fabric-disk-jointed coupling shaft and right-hand side control, has an aluminum casing with ball bearings for the mainshafts and a Hyatt roller for the pilot; malleable steel castings form end-plates that are piloted in and flange-fixed to cross-members of the frame, the front member being merely a flat steep plate. The rear casting also forms the front half of the spherical casing of the propeller shaft universal, the other half consisting of the ball end of the torque tube, for an inclosed propeller shaft is used, with the torque tube diagonally stayed to the axle ends. The constant mesh and third-speed wheels of the gearset are ground after hardening.



Details of Bean rear axle, showing worm drive

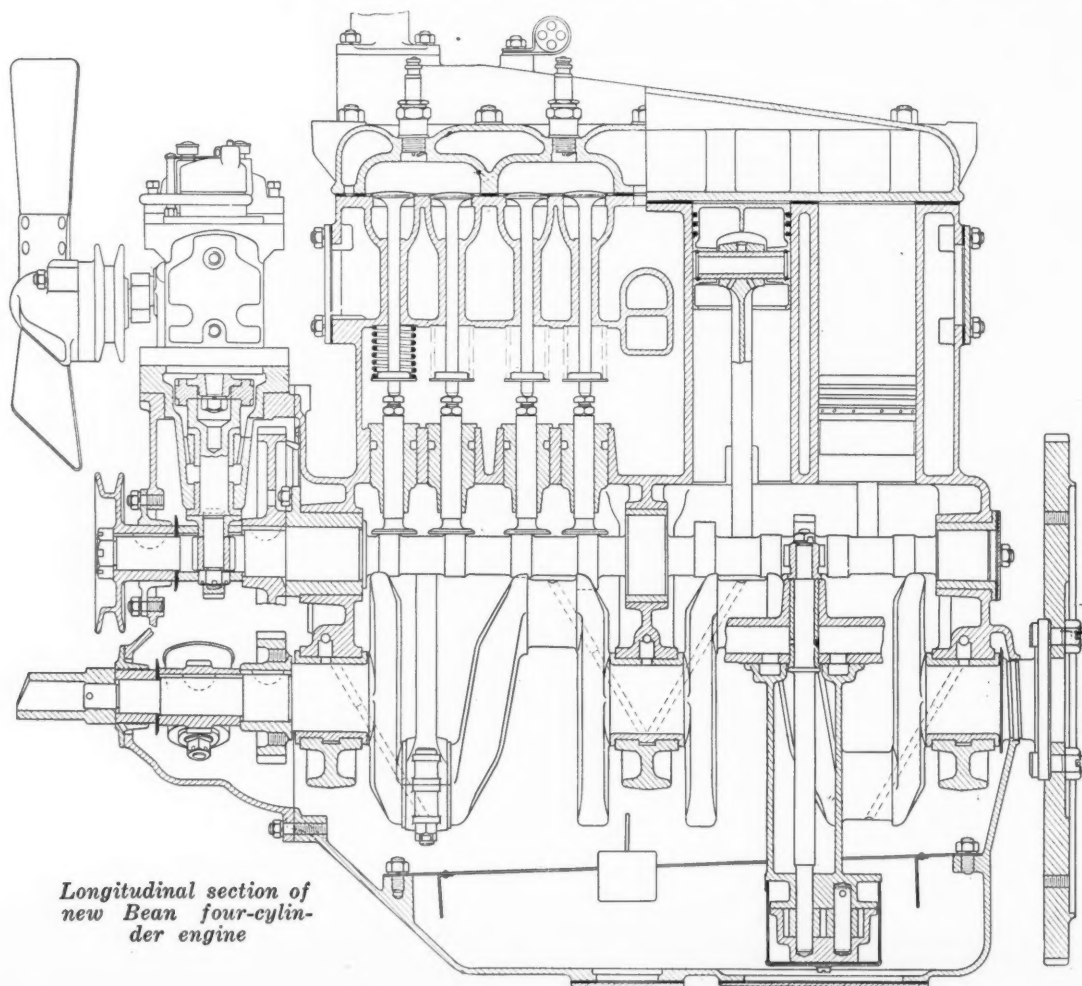
The final drive is by overhead worm with a ratio of 4.4 to 1. This is the first time Bean has used this form of transmission. The worm gear assembly is carried by the top cover, a malleable steel casting, of the banjo axle casing. The latter is a pressed steel unit with the major axis of its center horizontal; below is a separate underpan. Timken bearings are used for the worm gearing and ball bearings for the wheels.

Quarter-elliptic spring serve for the rear suspension. Their butt ends are secured in a latticed box bracket depending from the side rails. A 9/16-in bolt passes through all the leaves close to their front ends and through the bottom of the box bracket; the second fixing consists of a U-bolt which also passes through

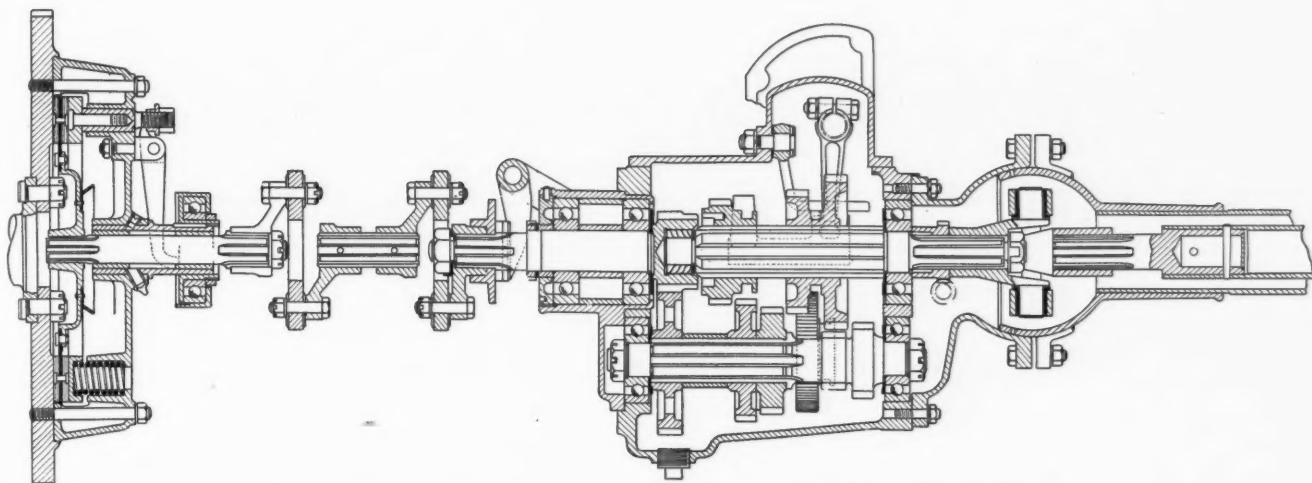
the bottom of the bracket only. Thus there is contact between only the main leaf and the bracket, an arrangement which is claimed to prevent inter-leaf movement from causing the security of the spring anchorage to be reduced.

At their rear ends the springs are secured by eyes and pins, underneath the axle casing, to extensions of the malleable castings that form the brake brackets and wheel bearing sleeves. The springs do not take either torque or drive. Half-elliptic springs are used at the front, where the axle beam is of H-section throughout.

The four-wheel brakes are pedal-operated, while the hand lever actuates only the single set in the rear wheel



*Longitudinal section of
new Bean four-cylinder
engine*



Section through clutch and transmission, showing driving connections

drums. The latter are of 12 in. diameter, and the front 10 in. The Perrot type front brakes have their camshafts supported at the inner ends on brackets clipped above the spring centers. No compensation occurs between front and rear sets, but the rear ones are compensated by means of the actuating cable that passes through dual levers on the brake cross-shaft.

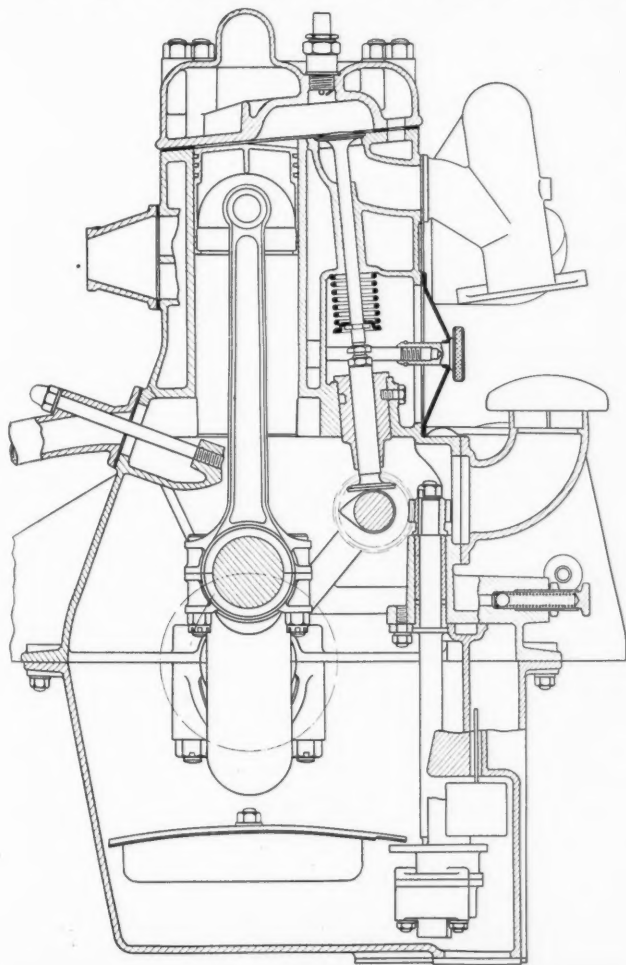
The frame, narrow at the front, is 44 in. wide behind the rear spring brackets, the offset being between the plywood dashboard and just in front of the rear spring brackets. In line with the latter is a dual cross-member, consisting of two pressed steel channels back to back;

other channel cross-members are located under the radiator (a V-front type of new design) behind the gearset and in front of the rear gasoline tank; at the extreme rear end is a tubular tie rod. The frame sides have a maximum depth of 5 in., are 1 $\frac{5}{8}$ in. wide and of $\frac{1}{8}$ -in stock.

Worm and wheel steering is used, in an aluminum casing with a cast side plate on the outside, an extension of which is supported by a trunnion bracket inside the frame channel. All steering joints are of the ball type.

The hollow pressed steel wheels have 29 x 4.95 in. Dunlop tires. The wheelbase is 120 in., the track 56 in. and the minimum ground clearance is 9 in. The chassis weight is under 1900 lb.

Included in the line of bodies is a fabric sedan at £385 and what is termed "Sunsaloon" which has a light metallic side structure over which the flexible roof can be wound up from the rear with a small detachable crank handle, by means of roller chains concealed in the cantrailis. The five-passenger phaeton is £325 and the coach-built sedan £395.



Transverse section of Bean engine

Automobiles in Denmark

THE Statistical Department of the Danish Government has compiled from registration records of the Police Department the following statistics of motor vehicles in use in the Kingdom of Denmark as of March 1, 1927:

	Taxi-cabs	Motor-buses	Trucks	Motorcycles and sidecars	Trailers
March 1, 1927	59,126	920	15,548	21,191	162
July 1, 1924	37,142	805	9,836	19,878	112

The total number of vehicles in the country on the latter date therefore was 96,947, as compared with 67,773 in 1924. The increase was 59 per cent in the two and three-quarter years for passenger cars and 58 per cent for trucks. The following statistics show the types of vehicles in most extensive use in the country:

Net weight	1927
Up to 1540 lb.	6,211
1540 to 2200 lb.	40,313
2200 to 2760 lb.	8,114
2760 to 3520 lb.	3,225
3520 to 4400 lb.	1,075
Over 4400 lb.	188

Total 59,126

Electrical Equipment of Adequate Capacity Urged for Buses

Matter considered of prime importance by speakers at A.E.A. summer meeting. Batteries should be selected on the basis of their eight-hour rating.

By Donald Blanchard

STANDARDIZATION of bus electrical equipment and the further development of the activities and membership of the Field Division were the major topics discussed at the summer meeting of the Automotive Electrical Association, held at Shawnee-on-Delaware, Pa., Sept. 12 to 14.

In connection with the activities of the Field Division, a committee was appointed to formulate a program for the future activities of this group. A re-issue of the Universal Parts Catalog, published for the first time in February of this year, also was approved.

Adequate capacity in electrical equipment used on buses was emphasized by all the speakers as being of prime importance. The problem of standardizing the equipment has been simplified somewhat by the fact that it is less common for operators to use the same bus in both urban and interurban service. When the same bus is used in both types of service, the fact that interurban service requires high operating speeds as compared with urban service, complicates the matter.

Three Standard Sizes

Indications are that three standard generator sizes having approximate capacities of 225 at 6 or 12 volts, and 400 and 600 watts at 12 volts, will meet the requirements of the bus field. However, the question of the minimum speeds at which these sizes should develop their rated capacities is still an open one.

Batteries for bus service should be selected on the basis of their eight-hour rating, according to L. E. Lighton, manager of automotive manufacturers' sales of the Electric Storage Battery Co. If the load on the battery is 20 amp., for example, when the generator is not operating, due to failure or because the bus is parked, then the battery should be of 160-amp. hr. capacity to insure proper stand-by. How much stand-by capacity is essential varies naturally with the type of service, as on a long interurban run an electrical system failure soon after the start of the run may place the entire load on the battery for five hours or more in some cases. On the other hand, in urban service, such failure could probably be remedied in an hour, due to the proximity of service facilities. Consequently, Mr. Lighton believes that batteries should be capable of from 3 to 5 hours stand-by in interurban service and from 1 to 1½ hours in urban service. Selection of batteries on the eight-hour rating basis will take care of this with a factor

of safety which is necessary as the battery is not always fully charged.

Observations made by Mr. Lighton indicate that on the average the bus battery is charged to from 60 to 70 per cent of its capacity, corresponding to a specific gravity of about 1.250, and that they usually reach the fully charged state between 1 and 5 p.m. The average charged condition represents a loss of 2¾ hr. capacity from the 8-hr. rate. If the battery is operated until it is completely discharged, the candlepower of the lamps is reduced 50 per cent, which is undesirable.

Insuring Proper Illumination

In order to insure proper interior illumination, discharge should not be carried below the point where the candlepower of the lamps is reduced to 75 per cent of their rating. This corresponds to a 6-hr. discharge at the 8-hr. rate. Considering the fact that on the average the battery is 30 to 40 per cent discharged, corresponding to a 2¾-hr. loss of capacity, a battery selected on the 8-hr. rate provides only 3¼-hr. stand-by capacity. If the battery is selected on the basis of a 6-hr. rate the stand-by is reduced to 1½ hr.

Because battery costs do not increase directly with capacity but at a considerably slower rate, use of units of adequate capacity is in the interest of economy. When bus batteries are selected on the basis of a 4½ to 5-hr. rating, as is frequently done, their life is reduced 50 per cent. At the 6-hr. rate, their life is but 70 per cent of that obtainable at the 8-hr. rating.

As to the location of the battery, Mr. Lighton recommended installation under either the driver's or one of the front passenger seats, as these locations are most accessible and also protect the battery.

Lighting Problems Discussed

Lighting of buses was discussed by W. M. Johnson of the National Lamp Works. He stated that lighting of motorcoaches generally was below that provided by other common carriers and attributed this to the fact that data available regarding the number, type and location of lighting units, size of wire and wiring arrangement, types of switches and sockets, and energy requirements, have not received sufficiently wide distribution.

An intensity of illumination of from four to eight-foot candles should be provided within the bus. For

a 25-passenger bus this means a steady lighting load of from 219 to 415 watts. Additional lighting and electrical accessories may increase the load 10 per cent and the ignition consumes about 15 watts. According to Mr. Lighton the starting load can be disregarded in a calculation of this character as, if the other requirements are provided for, adequate capacity will be available for starting. For coaches of larger or smaller capacity the only variation is the number of interior lamps. For each additional or lesser number of passengers, from $4\frac{1}{2}$ to 8 watts should be added or subtracted from the totals given.

In view of the fact that the candle-power of a lamp varies as the 3.4 power of the voltage the importance of using wiring of generous cross section and so laid out as to minimize voltage drop between the first and last lamp on a circuit, is obvious. Good connections also are essential.

Some interesting information on battery operating costs was provided by R. N. Graham of the Penn-Ohio Railways, which organization operates 121 buses in urban and interurban service. In 1926, these vehicles traveled nearly 4,700,000 miles. The average battery cost per bus mile, including replacements and maintenance, was 0.15 cents. Average battery life was 14

months and average battery mileage 47,718 miles. New batteries purchased during the year totaled 103.

Mr. Graham also favors placing the battery under the driver's seat and prefers a construction which provides access merely by tilting the seat. Brushes on generators and starters have not been a source of trouble except when mica has not been undercut properly. Inadequate bearings are a major source of electrical trouble in Mr. Graham's operation and he attributes this to a lack of engineering appreciation of the severity of the service. He also criticized the lack of standardization in head and stoplight equipment. Mr. Graham also prefers the automatic circuit breaker to protect the equipment.

The bus manufacturers' point of view was presented by A. J. Scaife of the White Co. who commented upon the progress that had been made in the improvement in bus electrical equipment. He also emphasized the importance of providing definite maintenance instructions for the operator.

Development of motorcoach electrical equipment, methods employed by operators in keeping maintenance and cost records, and maintenance methods were discussed by R. E. Plimpton of Bus Transportation.

Course in Automotive Selling is Announced

HARRY G. MOOCK, managing director of the Automotive Equipment Association Greater Market Development, has just announced the completion of a course in automotive selling for which enrollments are now being received.

The course is to be known as the G.M.D. Course in Automotive Selling. It is not an educational course, but is a collection of the best selling methods actually in use in the trade, arranged in six units for individual study.

Shortly after the inauguration of the Greater Market Development movement Mr. Moock entered into a contract covering the preliminary research work and actual preparation of this course. During the last four months a crew of 10 specially trained investigators has been covering all phases of the after-market trade—manufacturing, wholesale and retail, executive, department head and salesman—in all sections of the United States and Canada.

These investigators have shopped for accessories, parts and service. They have worked behind counters in jobber establishments and with both city and traveling salesmen. They have gone about with manufacturers' missionary men. They have introduced themselves to executives and asked a lot of questions. In addition to this personal investigation thousands of questionnaires have been sent to manufacturers, jobbers and their salesmen.

As a result of this exhaustive investigation the G.M.D. course has been compiled in two sections. One course—called the Retail Course—is for retailers who handle after-market products, accessories, parts and service, and the members of their organizations—service men and salesmen.

Another course—called the Wholesale Course—is designed for manufacturers and jobbers and their executives, department heads and salesmen. This wholesale course also includes the retail course.

When the survey ended six copies of every report were made. These were sent to different editors under whose supervision sections applying to the various sub-

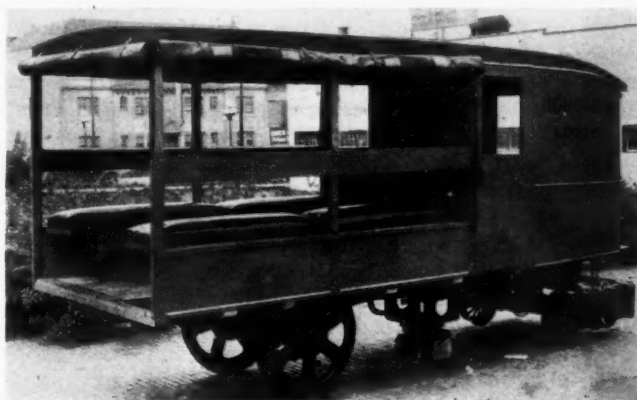
jects were clipped and filed under proper headings. Following this, the editors digested the information, separated the chaff from the wheat and compiled the final text into six books of about 60 pages each—called units.

Each unit deals with a specific subject, the retail subjects being as follows:

1. Helping Yourself by Helping the Owner.
2. Advising the Customer.
3. Making It Easy to Buy.
4. Overcoming Sales Resistance.
5. Building Up Steady Trade.
6. Greater Market Development.

The wholesale course also has six units under similar headings, but with changes designed to make the jobbing application.

A Chevrolet Rail Car



THE above photograph shows a Chevrolet that has been adapted for passenger and freight service over the U. S. Government railroad which runs from tidewater at Seward, to Fairbanks, Alaska, within the shadow of the Arctic circle. It will seat 12 passengers and runs on flanged wheels.

Polishing Industry Hampered by Lack of Standardization

Costs also too high and mechanical operations are often crude and inefficient. Fundamental analysis of polishing problems urged as basis for systematic control of work.

ALTHOUGH polishing is a very old art, the industry in general at present is in a state of chaos because costs are too high, mechanical operations are often performed in a crude and inefficient manner, and standardization is mainly conspicuous by its absence.

These were among the facts emphasized by Bradford H. Devine, of Devine Bros., in a paper entitled, "The Prerequisites of Successful Polishing," which was presented during the technical sessions of the American Society of Mechanical Engineers at the recent New Haven Machine Tool Exhibition, New Haven, Conn.

There has been little published material on the subject, according to Mr. Devine, who proceeded to take up the entire polishing problem under the several headings of (1) design of the article to be polished, (2) relation of preceding processes, (3) absence of vibration, (4) housing the equipment, (5) polishing machines, and (6) tools and glue.

His paper, in part, follows:

Polishing begins in the drafting room. Wheels of large diameter are more economical to use than wheels of small diameter. The article to be polished should be designed, therefore, to eliminate all unnecessary projections, depressions, angles, recesses or reverse curves, which can be polished only with narrow or small wheels at excessive costs. Usually the cost of any extra metal involved can be more than offset by the saving in polishing.

How Work is Received

The polishing department receives the work in either rough or tooled condition. When castings are to be polished without previous operations, they should be as free as possible from excessive sprues, ragged edges, lumps, or other similar surface defects. With forgings, as much scale as possible should be removed by pickling or other methods. In drawn or stamped work deep drawing marks or scratches caused by imperfect dies should be eliminated by correcting the dies. Work which is tooled, or which is ground on solid wheels, should be so processed that the surfaces will not be too rough. Deep tool or grinding marks necessitate the removal of too much metal to reduce the entire surface to the level of the bottom of such marks.

The absence of vibration is necessary for successful polishing. A polishing wheel, like any high-speed unit, is susceptible to vibration. A vibrating wheel makes scratches which cost time and money to remove. A polishing wheel works at best efficiency only when the entire face of the wheel comes in contact with the article being polished at every revolution of the wheel.

Vibration comes from several sources—the building,

the machine, or the polishing wheel. The building may be of light construction, or the floors may be too light to provide a sufficiently rigid foundation for the machine. The machine may be too light, or not well designed. It may not be properly secured to the floor, or may not have the necessary rigidity in the column, the shaft, or the bearings. The polishing wheel may be of such a type, or may be so designed that it is difficult to balance. Then, too, the wheel may be so headed that high spots or hard spots are developed, which throw the wheel out of balance.

Heavy Floors Required

The building housing the polishing department should be of solid construction. Floors should be heavy so that polishing machines may be firmly fastened to them. Rooms should be well lighted so that the operators can critically inspect their work. The department should be clean, both for sanitary and mechanical reasons.

Good dust-collecting systems should be installed in order that the dust from the wheels may be quickly removed. Abrasives will fly from the wheels; and if the grains from the coarse wheels come in contact with work undergoing finer operations, deep scratches will be caused which oftentimes the operator cannot account for. It costs money to take these scratches out.

Rigidity and durability are the factors of greatest importance in polishing machines. The items which enter into these factors are the size of the machine, its weight, the floor area of the base, the design and construction, the size, the location and type of bearings, and material in the shaft and its diameter.

Automatic polishing is rapidly taking its place in the industry for processing large productions of flat pieces, or pieces having a portion of their surfaces flat. While, at present, interest in the automatic polishing of flat work predominates, round bars, tubes, and contoured pieces are also being successfully produced on automatic machines. The variety of work capable of accomplishment by automatic processes is rapidly increasing.

The difficulties encountered in automatic polishing are not so much in the machines as in the lack of ability of the operators in charge of them to tool them and operate them properly. The wheels must be manufactured especially for the work. Wheels of different character than those used for hand work usually are necessary. Absolute trueness and perfect balance are essential. The wheel must contain within itself the characteristics and qualities which will take the place of the human "feel" in hand work.

Polishing wheels, unfortunately, have been considered and purchased altogether too much from the standpoint of merchandise; and the fact that they are tools of very considerable importance has been somewhat lost sight of. In the manufacture of polishing wheels, too much consideration has been paid to something to sell at a competitive price rather than to the development of the tool itself in the proper relationship to the work it is to do. The general theory has been that anything round, which will yield, and provide a cushion on the face, and to which abrasives can be glued, is a polishing wheel.

Three Classes of Wheels

Polishing wheels may be separated into three general classes varying according to their characteristics and adaptation to the different flexible-grinding or polishing operations, grading from the coarsest grinding to the finest finishing operations. One class is that in which the wheels are made in disk form, the materials commonly employed being disks of leather glued together; disks of canvas sewed or cemented together, or held in position by metal side plates; disks of woven felt sewed or glued together; disks of sewed buffing-wheel sections, each section individually sewed, and then the sections either sewed or glued into the unit of the wheel, or held together by side plates.

Another class of wheels is that which may be designated as the "crosswise" type. This class of wheel has steel or wood centers around which are placed blocks of leather, canvas, felt, or other materials, the blocks lying radially to the axis of the wheel and crosswise of the face. This position of the material is diametrically opposite to that in the disk type of wheel.

The third class is the wheel with a solid one-piece face. The leather covered wood wheel is the commonest type of this construction, although leather strap faces are used on solid paper wheels or as a covering for the crosswise type of wheels. Solid felt and solid walrus wheels come in this class of solid-faced wheels.

In general, the disk type of wheels are used for the roughest, coarsest grinding operations. The crosswise type of wheels are more commonly used for practically all operations from the coarsest grinding to the finest finishing, depending upon what the degree of coarseness and what the degree of fineness is. The strap-faced wheels are, or should be, used almost entirely for the finishing operations which produce the lustrous or mirror finishes, or on flat work.

Abrasive Grains

There are two kinds of abrasive grains in common use—emery, which is a natural product, and grains which are manufactured from bauxite. Emery is impure or low-grade corundum containing magnetite or hematite. The corundum is that portion of emery which does the cutting. The other materials are inseparable from the corundum particles; they have no function in the cutting operation, and tend to modify the cut of the emery. This modification of the cut is considered by some to be advantageous in the finer operations employed for the actual production of lustre. For flexible-grinding operations, the manufactured abrasives are far superior to emery.

Examined under the glass, the manufactured grain appears very much like sharp pebbles, uniform in size, and containing no foreign matter. It differs from emery in being more uniform in hardness or temper. Each grain is so constructed that when properly bonded

to the wheel it will fracture away piece by piece, each fracture presenting a fresh cutting edge until the grain is consumed. Wheels headed with manufactured abrasives have less tendency to glaze than those headed with emery.

Another important feature in handling grains is the proper consistency of the glue for the different sizes of grains. If the glue is too thin for coarse grains, it will not provide the proper body to hold the grains. If the glue is too thick for the finer grains, the cut of the grains will be modified, a glazed condition of the wheel face will result, and wastage occurs.

Glue is the most important prerequisite of polishing. When it is realized that the abrasives glued to polishing wheels have to perform practically the same operation of grinding away or tearing down metals as solid vitrified wheels do, it will be evident that glue as the bond between the wheels and the abrasives is the most important factor in polishing. The efficiency of the combination of the wheel and abrasive as the cutting tool depends almost entirely upon the strength of the glue bond. The ability to secure the desired finished surface, and the cost of securing that surface, depend upon the strength of the glue bond. In fact, glue is the keystone of successful polishing.

The reduction of the processes of glue handling to a definite formula has been one of the most important steps toward the standardization of the polishing industry. However, to utilize such a formula to the best efficiency, the glue, handling equipment, and all factors pertaining to it, must likewise be standardized.

In addition to the points considered in this paper, there are two other prerequisites of successful polishing. One is the correct methods of processing the various polishing operations; the other, the supervision and standardization of the polishing department.

As to the supervision and standardization of the polishing department, the author's observation of the industry, both in this country and abroad, has convinced him that it is to the advantage of executives and engineers that they analyze their polishing problems; that they do not try to correct conditions by remedying the weak spots, but by making a complete and fundamental analysis as a basis for a systematic control and standardization of polishing departments.

Three New LaSalle Models

IN order to round out its line of cars, the Cadillac Motor Car Co. has announced the addition of three models to the LaSalle line, mounted on a longer, 134-in. wheelbase. They consist of a seven-passenger sedan at \$2,795, an "Imperial" five-passenger sedan listing also at \$2,795, and an "Imperial" seven-passenger sedan at \$2,895.

These additions give the LaSalle line a total of 15 body models, which in addition to the Fisher Custom line includes four models by Fleetwood.

Detailed body changes have also been made in the LaSalle bodies. Instead of the 12 wide louvres formerly used, the hood now has 28 narrow louvres, these being placed further back on the hood. Side ventilators have also been incorporated in the front compartments, these being located near the floorboards and operated by hand levers. Sun visors are now of opaqued glass instead of the leather-covered type formerly used. Cushion springs have been lightened to increase riding comfort by adding resiliency.

Pump Feeding Fuel to Carburetor Operates From Camshaft

New device said to combine advantages of vacuum and pressure type of gasoline feed. Product of Rectifier Mfg. Co.

A PUMP designed to feed gasoline to the carburetor and to maintain uniform level in the float chamber has been patented by the Remington Mfg. Co. and is now ready for production by the Rectifier Mfg. Co. of Decatur, Ill., under special license.

All the advantages of the vacuum and pressure type of gasoline feed with the disadvantages of neither are claimed for the new product. The device consists essentially of a small three-chamber casting approximately 3 in. by 3 in. by 2 in., in the horizontal chamber of which a piston is reciprocated by pressure of one of the cams on the camshaft of the engine and returned by a spring within the cylinder, thus affording a means of rarification and compression of air within the pump.

In the suction chamber, which is vertical and communicates with the piston chamber through a hole drilled in the wall between them, there is a float operated valve which in its upward position closes communication between the supply tank and the pump against the suction stroke of the piston, and in its lower position closes off the passage between the supply tank and the pump on the pressure stroke of the piston.

In the other vertical chamber there is a large disk valve closing the passage between the carburetor pump and the carburetor on the suction stroke. Thus the energy of the piston is imparted to the fuel by means of an entrapped air head which cannot be increased nor decreased in volume beyond limits of compression and expansion.



*Assembly view of
Remington carburetor
feed pump*

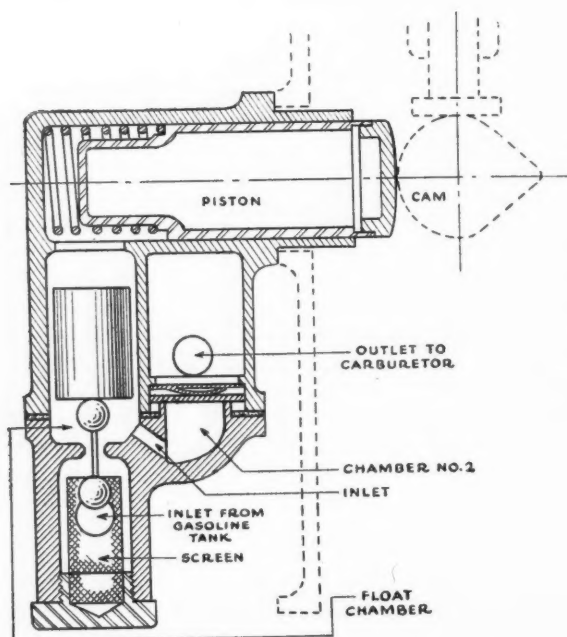
There is a passage between the suction chamber and the pressure chamber through which the fuel on the pressure stroke may pass upwardly through the valve in the pressure chamber on its way to the carburetor.

Operation of the pump is as follows: On the suction stroke of the piston, air is rarified in the suction chamber, which causes gasoline to rise in the supply pipe. On the pressure stroke the backward flow of the gasoline to the supply tank is checked by the upper float valve ball seating downwardly and air is blown through the valve in the pressure chamber and thence to the open carburetor, thus causing the pump to function solely as a vacuum pump.

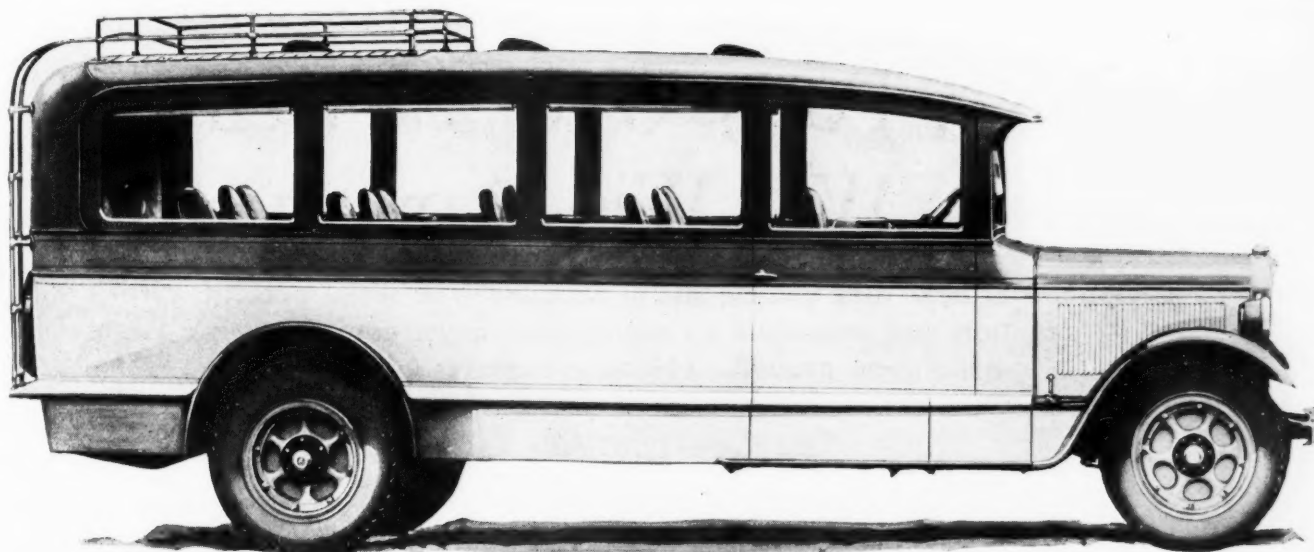
When the air in the supply line has been thus replaced with fuel, the liquid level in the suction chamber will continue to rise until the buoyant point of the float has been reached, at which time the float balls will be free of both valve seats and the device will function the same as in the case of a one valve system; the fuel will be free to surge up and down the supply pipe line without causing excessive pressures, as in idling, which would mount up in case the back valve were not unseated by the float until either the carburetor or crankcase was flooded with gasoline.

Surging will continue until the needle valve in the carburetor falls and the pressure of approximately one and a half pounds in the pressure chamber is diminished, whereupon the gasoline which has flowed into the carburetor will be replaced by inflow from the supply tank because the air head remains the same. There is thus set up a condition of hydrostatic balance whereby the energy of the piston may be expended in surging or used for pumping, depending on whether the carburetor needle valve is closed or open.

In all cases where a gravity flow to the carburetor exists, the float will rise as the liquid level rises and will close off the inlet from the supply tank, even though there be a serious leak in the piston, since on the suction stroke with both valves closed air will be drawn from the crankcase and replace the air head thus lost by leakage. The function of this float valve in shutting off the gas supply is to serve as an emergency element both in lifting fuel under extreme conditions and in checking the inflow of fuel under extreme gravity flow, such as in traveling long distances down hill.



Sectional view of carburetor pump



This new 16-passenger Graham Brothers parlor coach supersedes the former four-cylinder model JB. It has a six-cylinder engine, four-speed transmission and Lockheed hydraulic four-wheel brakes

New Six-Cylinder Graham Bus Has Four-Speed Transmission

FOLLOWING the recent introduction by Graham Brothers of a line of six-cylinder trucks, announcement is now made by this division of Dodge Brothers, Inc., of a new line of six-cylinder buses. The new line consists of a 12-passenger parlor coach listing at \$4,045, a 21-passenger street car type selling at \$4,060 and a 16-passenger parlor coach listing at \$4,290.

In addition to the six-cylinder engine, a four-speed transmission, hydraulic four-wheel brakes, cam and lever steering gear, and a new type of rear spring design feature the new models. Higher speed and generally improved performance have been the main objectives in the new design, while comfort has been given attention in better distribution of weight and a new type of seat design.

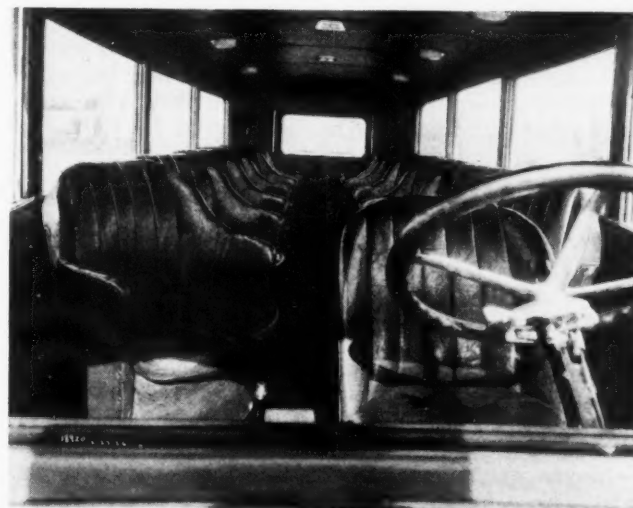
The line supersedes the four-cylinder Graham buses produced during the past seven years. Bodies and chassis are being manufactured by Graham Brothers. All models are mounted on a 162-in. wheelbase. A larger proportion of the weight than usual is carried over the front axle, enabling the use of a relatively short wheelbase. Rear overhang has also been reduced.

Powerplant design follows closely on that used in the Dodge Senior Six passenger car line and the Graham Brothers six-cylinder trucks. The four-speed transmission is also practically identical with that used in the six-cylinder trucks. Rear axles are of the bevel gear conventional type. Parlor coaches have a standard rear axle ratio of 5.667 to 1, with a reduction of 6.375 to 1 on the street car type. Optional ratios are available on all models.

An interesting rear spring design has been worked out for the new buses. It consists of two superimposed semi-elliptic springs fastened to the frame by the same bolts and shackles and so arranged that the secondary upper spring comes into operation after the primary spring has been deflected a certain amount. Moreover,

the rubber stop pads on the frame for the upper spring are so arranged that one end will strike the stop pad first, leaving the other end of the spring to act as a short cantilever spring for further deflection. Through this design, a gradually increasing spring stiffness is obtained with increasing deflection, while for light deflections easy riding is thus procured.

Body design in the 12-passenger parlor coach incorporates the use of individual seats with overstuffed air cushions and deep springs, the seats being set at an angle to the body sides. A similar design is used in the 16-passenger coach which has four double seats along the left and four single seats to the right of the aisle, with a four-passenger cross seat at the rear.



Interior of the new Graham Brothers 12-passenger club coach

M.A.M.A. Feels "Sale and Delivery" Terms Will Win Approval

Opinion is held that vehicle manufacturers will sense present situation and cooperate in seeing that more equitable conditions prevail. Horning explains plan.

By Lewis C. Dibble

ACTION of the Motor and Accessory Manufacturers Association in adopting a statement of Equitable Conditions of Sale and Delivery at their convention in Detroit, last week, as a step toward overcoming some of the difficulties which have arisen in the parts industry in past months due to the practice of hand-to-mouth buying, is of vital interest throughout the automotive industry.

The action followed long and careful study on the part of the association which included a far-reaching investigation of selling methods practiced by the association's membership. While the study revealed that definite inequitable conditions of sale constituted only a small part of the business enjoyed from the automotive industry, nevertheless the association deemed its advisable to adopt some definite program as a means of curbing further growth of the practice to a point where it might have disastrous effects on the future prosperity and existence, not only of the parts business, but of the entire industry.

While on its face it might appear rather difficult for the industry to adopt such a clear-cut plan as was laid down at Detroit, the opinion was held by many that various manufacturers in the automotive industry will sense the situation, especially as it might affect their sources of supply at some future date, and cooperate in seeing that more equitable conditions prevail.

It has been recognized for some time that there has been a growing tendency on the part of buyers to expect that goods will be manufactured and held against releases, and, if they are not needed, that the seller shall be responsible. The tendency in the case of some purchasers has taken the form of a contract which is merely a statement of possible requirements, binding the seller to fulfill these requirements at a stated price over a certain period but imposing no liability on the buyer to accept stated quantities at stated times. These contracts have been followed at times by purchase orders which sometimes were equally non-committal as far as the buyer was concerned, compelling the seller to wait for shipping schedules before he had anything binding upon the purchaser.

Tentative Shipping Schedules

In some cases even shipping schedules have been made only tentative and subject to releases by a production or planning department which frequently issued these releases so close to the specified date of delivery that the buyer would have been unable to comply with the order unless he had anticipated it with purchase and fabrication of materials at his own risk.

On the other hand it was pointed out, there are a

number of companies, including several of the large ones, whose policies are above criticism. They issue bona fide purchase orders covering two, three or more months' requirements without qualifications. Some of these invariably specify delivery dates on the face of the order, enabling their suppliers to proceed economically with the buying and fabricating of materials and assuring deliveries on schedule. Others, going to extremes in seeking to restrict their reliability on commitments, impose or attempt to impose serious difficulties and risks on their suppliers, or, in some cases, suffer delays in delivery and pay higher prices than would be necessary if their commitments were made definitely and adequately in advance of their requirements.

Plan Viewed as Unselfish

One thing that was stressed at the meeting was that the parts makers in adopting the plan believe they are taking an unselfish attitude and are not laying down a program which is designed to work hardships on their respective customers. In other words they are making certain demands to give them more assurance and protection in the manner in which they accept orders and they are, on the other hand, also laying down certain principles of practice which they would follow as a guarantee to their customers that contracts would be filled promptly and satisfactorily.

Before going further it is well to cite the Equitable Conditions of Sale and Delivery as adopted at the Detroit meeting.

The Motor and Accessory Manufacturers Association believes that conditions of sale and delivery in the automotive industry should be such as to assure—

To the Buyer:

1. Quality products, guaranteed against faulty workmanship or materials, and conforming, when so agreed, to the specifications of the buyer.
2. Deliveries according to schedule.
3. Lowest possible prices commensurate with fair profit for the seller, this profit to make reasonable allowance for an overhead that considers stability of organization, engineering service when needed and research leading to improvement in processes and products.

To the Seller:

1. Purchases which are definite as to quantity and date of delivery.
2. Orders in sufficient quantities and far enough in advance of delivery dates to permit economical purchase, processing and shipping of materials.
3. Sufficient notice of modification of orders to prevent loss as a result of purchase or fabrication

of materials not required, or reimbursement if such losses occur.

In order to maintain equitable conditions the association believes the suppliers—

1. Should quote definite prices on definite quantities for delivery within a stated period, prices to be adjusted if the stated quantities are not taken.

2. Should fix minimum quantities for production runs of specially designed products, with definitely stated higher prices if delivery schedules are so small as to necessitate shorter runs.

3. Should promise buyer price reduction in case of declining material costs only if customer agrees to like protection of supplier in case of rising material cost.

4. Should accept cancellation orders only when such action is unavoidable and only upon reasonable reimbursement for losses resulting.

5. Should insist on releases or delivery schedules in ample time to permit economical purchasing, processing and shipping of materials and refuse to modify releases after work is in process.

6. Should adhere to terms definitely agreed upon in extension of credit or granting of discounts.

In the introduction of the plan, Harry L. Horning, president of the association, said that he thought in transactions with the automotive industry, in which there were definite inequitable conditions prevailing, that these conditions represented a small part of the total business, yet great harm would result if they were allowed to grow. The campaign which has been conducted among members of the association, he said, was to call attention to conditions and try and prevent them extending and doing more damage.

"The automotive industry has experienced the advantages and disadvantages of the current era of close buying," said Mr. Horning. "Makers of units, parts and accessories, with their customers on one hand and their suppliers on the other, have benefited by the generally practiced policy of maintaining low inventories, with resultant frequent turnover of capital invested in materials. At the same time they have suffered from uneconomically short delivery schedules, modifications and cancellations, from deliveries in small quantities at prices quoted on large orders and from the necessity at times of purchasing and processing materials virtually on speculation rather than on firm contracts of sale. The parts makers have noted a growing tendency on the part of buyers to expect that goods would be manufactured and held against releases, with no protection for the seller if the merchandise was not needed.

"As requested by the membership at the regional meeting of 1927, the Motor and Accessory Manufacturers Association has made an investigation of selling and buying in the automotive industry. The association has observed the effects of the practices here outlined and believes that the interests of buyers as well as suppliers would be served by their avoidance. Parts making by specialist manufacturers has reached a high state of development, essential not only to the progress, but to the very existence of the industry. Imposition of conditions damaging the stability of this business would create serious difficulties for parts buyers and would have a harmful effect throughout the entire industry.

"While recognizing the advantage to industry and the public of frequent turnover and low inventories, the Motor and Accessory Manufacturers Association believes that care should be exercised to make every transaction equitable both to the seller and the buyer. The association urges that makers of units, parts, accessories and kindred products make every legitimate effort to establish and maintain relations with their customers on this basis. As a means of accomplishing this end,

the association recommends adherence to the Equitable Conditions of Sale and Delivery."

It is interesting to review some of the phases of the work the association conducted leading up to the statement. The first step was the holding of conferences with individual member companies and committees of members in the principal production centers, and conducting extensive correspondence with the whole membership by which means was determined the principal difficulties in dealing with customers and the principal obstacles to steady and economical production and reasonable profits.

Campaign of Information

While gathering this information the association started issuing bulletins to the membership. This has been in progress for three months and is still going on, defining various problems and suggesting means of meeting them. This campaign of information has enabled a good many members to analyze their own difficulties better and to work with their customers to put their relations on a mutually equitable and satisfactory basis. The campaign included descriptions of negotiations conducted by many individual members with their customers and it was all aimed at clarifying the situation by making buying and selling conditions in the industry better understood.

The campaign logically led up to the statement of Equitable Conditions of Sale and Delivery, as the association sees them, after all this inquiry. The campaign of information, it is also understood, has attracted the attention of other industries having similar difficulties and requests have been made by other associations for copies of the booklet.

An interesting talk on credits and their relation to business was given by J. H. Trego, who retires soon as executive manager of the National Association of Credit Men. Mr. Trego plans to devote his life to missionary work in promoting a better understanding of credits among business men of the country.

Mr. Trego pointed to the tremendous growth business has enjoyed by comparing check movements in 1900 of eight and one-half billion dollars to 600 billion dollars annually at present. This gigantic increase in business has been accomplished with only a 20 per cent rise in population, but, in his belief, this prosperity is based on systematic credit extension. The magic credit has wrought, he said, has given the business of the nation its code of ethics.

Modern business has been built upon confidence and there have been four steps in this evolution. He pictured the adoption of the Gold Standard in 1900 as the foundation; second, the passage of the Federal Bankruptcy Act; third, cooperation by means of which business competitors help instead of hurt each other, and fourth, as the capstone of business confidence, the passage in 1913 of the Federal Reserve Act which gave the country a scientific banking system.

In conclusion, Mr. Trego said that in spite of all these improvements, the country still needs more appreciation by chief executives of the importance of credit control and the necessity of employing competent credit executives.

The big job ahead for the aviation industry is to sell the public on the idea of flying, Glenn H. Hoppin, secretary of the Stout Air Services, Inc., a division of the Ford Motor Co., declared in his talk on the advancement of aviation. Airplane manufacturers are looking to the business as a transportation proposition and are devoting their major attentions to building large transport planes which eventually will be operated by reliable transportation companies.



6000 feet up. This picture of Mr. Mayo was taken during his recent trip to the Pacific coast in a Ford all-metal transport

Aircraft and Automobile Industries Natural Allies, Says Mayo

Similarity of engineering, production and sales problems
pointed out by engineer of Ford Motor Co.

By A. F. Denham

WHENEVER the aircraft and automotive industries are mentioned together there is a natural tendency to think of the Ford Motor Co. The past operations and achievements of the Ford organization and its subsidiary, the Stout Metal Airplane Division, have been widely discussed both verbally and on the printed page.

While Mr. Ford himself has been quoted a number of times as having said that his aircraft operations are purely experimental, the fact remains that his organization has grown to be one of the dominating factors in aircraft construction. Up to the present the Ford organization has concerned itself chiefly with the production and operation of large transport ships. But with the growing demand for smaller ships, a small plane is now also being considered for quantity production at the Dearborn airplane plant, definitely marking the Ford organization as in the aeronautical field to stay.

What does the future hold for an automobile manufacturer who turns to the aircraft field as has Ford, and what advantages does he hold over the independent

airplane manufacturer? A study of future plans of the Ford Motor Co. and the ideas of its executives is perhaps the best answer to this question, and since airplane construction is generally considered as being still largely in the engineering stage, we asked William B. Mayo for his ideas on the subject.

The airplane industry has often been designated as belonging peculiarly to the younger generation, yet in Mr. Mayo, who has reached the age of 61, and has for 14 years been engineer of the Ford Motor Co., we found as ardent an enthusiast for the new era of transportation as will be unearthed anywhere.

Mr. Mayo was born in 1866 in Chatham, Mass. He is not a college man but studied under tutors. Before coming to the Ford Motor Co. he was connected with the Hooven, Owens, Rentschler Co. of Hamilton, Ohio, builders of large stationary engines. He had become vice-president of this organization before joining Ford, and has retained his connection with the company. Mr. Mayo is also a director of several large banks. His interest in the aircraft field is shown by the fact that he is a director of the Pratt & Whitney Aircraft

Co., and vice-president of the Stout Metal Aircraft Division since its acquisition two years ago by the Ford organization. Among the various associations in which he is actively interested is the Detroit Aviation Society, of which he is president. He is also vice-president of the Aircraft Development Corp.

According to Mr. Mayo, the entry of the automobile manufacturing industry into the airplane field, as exemplified by Ford, is a logical development.

Industries Closely Related

"Not only could the aeronautical industry never have reached its present state of development in so short a time without the active assistance of, and knowledge gained from, the automobile industry," stated Mr. Mayo, "but it has much to gain from a tie-up with the automotive industry in future, not only as regards engineering design but also in merchandising, service and operating methods. It has been stated occasionally that the only claim of kinship the automotive industry has with the airplane lay in the fact that both use internal combustion engines. The relationship is much closer than this."

"The airplane," continued Mr. Mayo, "is nothing but an automotive vehicle of slightly different form. It has gas tanks and gas lines, rubber tires and wire wheels, brakes and ball bearings. Even in the design of passenger accommodation the trend is following that of the automobile. In the early days open cockpit type machines were almost universally used, as were open models in the passenger car field. Now the public has come to demand closed cabin ships for airplanes and closed models in automobiles."

Even the problems of production in airplane and automobile fields are closely allied, according to Mr. Mayo.

"As far as structure of the airplane proper goes," Mr. Mayo explained, "materials used in all-metal planes have to go through similar manipulations to those in automobile bodies. Streamline and airfoil sections are getting to be more and more standardized, making the problem of airplane building one of production rather than of aerodynamic design. Even the instruments used in airplanes are similar to those used in automobiles. Both have oil pressure gages, temperature indicators, and speedometers, or tachometers, their equivalent."

Asked as to what in his opinion would be the most effective means of distributing airplanes in future, when the quantity production stage is reached, Mr. Mayo stated that it would be advantageous if these were distributed through established dealer channels. Automobile dealers, Mr. Mayo believes, are exceptionally well-fitted for distributing this type of product.

"An automobile dealer organization," stated Mr. Mayo, "would not need separate sales forces to sell the smaller planes. The average automobile salesman of

today is fully capable of handling such sales." That the Ford organization is rather well convinced of this seems to be proved by a statement Mr. Mayo then made regarding future sales of Ford planes.

"When public demand makes advisable the retail handling of airplanes through dealer organizations, Ford planes will be handled through our regular dealers. Jack Maddux, the Los Angeles Lincoln dealer, already has one of our planes which he is using as a demonstrator. This applies mainly to the smaller type of plane, adaptable to individual ownership and operation. Larger transport ships will probably continue to be handled directly through the factory."

Mr. Mayo then added that it would be impossible to build planes fast enough if the public realized the safety and value of air travel. He has just returned from a trip to the Pacific Coast in one of the Ford-Stout all-metal ships.

"We had breakfast in Chicago, lunch in St. Louis, and dinner in Kansas City the first day," explained Mr. Mayo. "Next day we had lunch in Omaha and dinner in Denver. Leaving Denver in the morning we flew along the backbone of the Rocky Mountains at about 9500 ft. elevation, finally crossing the divide and dropping into Salt Lake City for lunch."

Leaving Salt Lake City after lunch we flew directly through mountainous country, through several canyons, and finally through Bryce's Canyon, the scenery of which is beyond description. Then over the Keibab National Forest and through the Grand Canyon, arriving at Williams, Arizona.

We spent the day flying through the canyons and enjoyed scenery which I believe has never been seen before. From Williams we flew the next day through the Grand Canyon as far as Boulder Dam, thence to Las Vegas, Nevada, and arrived at Riverside, Calif., at noon. From there half an hour took us into Los Angeles."

"Thousands of people," concluded Mr. Mayo, "would pay nearly any price to see the scenery on this trip, if they could only realize how safe it is."

At the various stops on his trip to the coast, Mr. Mayo attended to

business calls in the various cities, and yet the entire trip from Detroit to Los Angeles, with no night flying, consumed only three and a half days.

While sales of Ford-Stout all-metal planes up to the present have been confined to the standard transport ship, with either one 450 hp., or three 200 hp. engines, the Stout Airplane Division has not confined its activities to this type of plane. The small Ford monoplane single-seater, powered with an Anzani engine, is an example in point. Experiments on various sizes of aircraft engines are also being carried on, ranging from a two-cylinder air-cooled upwards. Moreover, in addition to the five-passenger single-engined plane forecast for the near future, Ford engineers are said to be working on a 100-passenger air-liner.

NOT only could the aeronautical industry never have reached its present state of development in so short a time without the active assistance of, and knowledge gained from, the automobile industry," says Mr. Mayo, but it has much to gain from a tie-up with the automotive industry in the future, not only as regards engineering design but also in merchandising, service and operating methods.

"It has been stated occasionally that the only claim of kinship the automotive industry has with the airplane lay in the fact that both use internal combustion engines. The relationship is much closer than this."

"The airplane is nothing but an automotive vehicle of slightly different form. It has gas tanks and gas lines, rubber tires and wire wheels, brakes and ball bearings. Even in the design of passenger accommodation the trend is following that of the automobile."

NEW DEVELOPMENTS—Automotive

Auto-Matic Vertical Turret Lathe

THE latest product of The Bullard Machine Tool Co. is the Auto-Matic Vertical Turret Lathe. While retaining the advantages of vertical design in a chucking machine, this is a single spindle unit with a monitor type turret having four faces, one for the chucking position and each of the others provided with tool heads for multiple cutting.

Each head is capable of performing a group of operations simultaneously and the three heads offer a sequence in groups of operations providing for changes in speeds and feeds to suit each group. Automatic operation of the complete cycle permits one operator to tend as many machines as the cycle time allows for chucking.

The range in quantity production to which the machine is adapted and the speed with which changes can be made in set-up make it very suitable for production in small and intermediate quantities which can only be surpassed in large quantities by multiple spindle machines built for the same purpose.

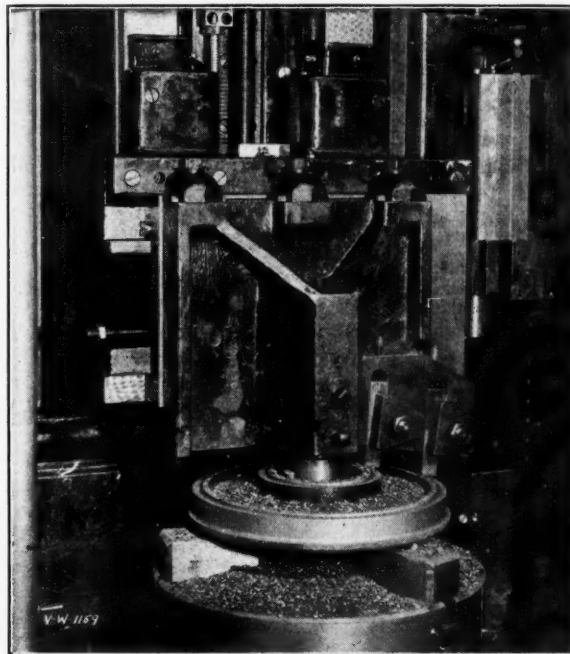
The whole machine is self-contained with reservoirs for cutting compound and oil in the base and rigid bed and column castings. The work spindle is heavy duty of typical Bullard design. At the head of the spindle is mounted a mechanically operated power chuck, three-jaw universal type, in which the chucking pressure may be calibrated to fit the work being held.

The diameter of the spindle head and power chuck body is 18 $\frac{3}{8}$ in. and a clear swing of 24 in. diameter is provided below the turret ways. The turret, in indexing, will swing past work 16 in. diameter. The machine column is surrounded by a monitor type turret with four faces. When the clutch mechanism is tripped the turret indexes to each of the three working faces, presenting them in sequence to the work spindle. The machine stops automatically at the end of the cycle.

The tool heads on the three working faces may be plain, compound, universal or double purpose type, providing for vertical, horizontal or angular feeds. As the turret registers each tool head in position the feed mechanism is tripped and the tool head rapidly ad-

vances to the work, is locked in position and the tool slide feeds through the cut at the predetermined rate. The tools are then rapidly returned and the turret indexed to the next working face. The spindle speed and the tool feed of each head may be varied independently.

The feed works unit which controls spindle speed

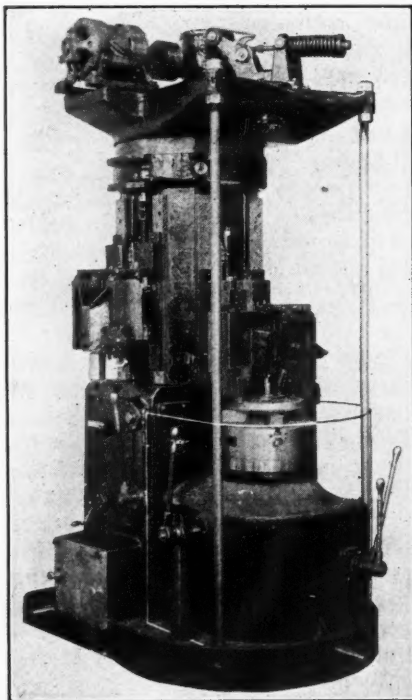


Detail view of one of the tool heads

and tool feed at each head is located in the base of the machine. Independent sets of quick change gears control the speed and feed changes. The former has three series with 19 changes in each. The first ranges from 7.4 to 57.5 r.p.m.; the second from 11 to 86 r.p.m. and the third from 18 to 140 r.p.m. Feed gear changes also run in three series of 19 changes each ranging from .0041 to .0322 in. per rev. for the first series, from .0061 to .0473 for the second and from .0169 to .1315 for the third.

The feed cam provides a primary tool head traverse of 8 $\frac{1}{2}$ in. which may be used vertically for rapid advance of the head to the cutting point and for feeding through the cut. The maximum cross-feed available in the compound type of head is 4 in. which still leaves 4 $\frac{1}{8}$ in. of vertical traverse to advance and retire the head from the work. The full vertical stroke with head in low position brings the tool slide within 8 in. of the top of the chuck and provision is made for 8 in. adjustment above this.

With the universal and double purpose heads maximum cross-slide travel is 3 in., leaving 5 $\frac{1}{8}$ in. of the vertical traverse for the rapid advance and retiring of heads. Rate and length of cross-feed for the double purpose head is in direct ratio to the primary feed motion or may be set to six lesser ratios, the minimum being 1 $\frac{1}{2}$ in. of cross-feed to 3 in. of primary vertical motion. The operations available, therefore, include the complete list for chucked work and make up a machine of universal adaptability.



General view of new Bullard Auto-Matic Vertical turret lathe

Parts, Accessories and Production Tools

Throughout the entire mechanism safety features have been incorporated and there are no moving parts exposed. Lubrication for the operating mechanism is accomplished by a flood of filtered oil feeding by gravity from the distributing reservoir at the head of the machine. External units which cannot be reached by this means are provided with Alemite-Zerk units.

Motor drive for the machine requires a $7\frac{1}{2}$ hp. constant speed motor running about 1800 r.p.m. Projected floor space is 72 in. front to back, 56 in. wide and 122 in. high overall. Weight of the machine without motor is approximately 14,000 lb.

Eclipse Multidiameter Cutters

THE Eclipse Interchangeable Counterbore Co., Detroit, Mich., is manufacturing a patented multidiameter cutter for performing machining operations which formerly required a number of tools and successive operations. This speeds up production and reduces tool inventories. One of the simplest forms of this cutter is that used for counter-boring holes for Welch plugs. Formerly these holes were first drilled out to obtain a round hole, and were then counter-bored with a tool having a pilot entering the drilled hole. The Eclipse cutter used for this purpose combines a core drill and a facer, each operation being performed by a separate set of integral cutter blades. For Welch plug work, moreover, the Eclipse company manufactures a complete set, comprising a cutter, a punch and a hammer.

Beginning with the simple cutter for Welch plugs, the Eclipse company developed the idea involved in this tool until an eight-operation multi-diameter cutter was arrived at. This tool not only machines more than one diameter but faces, chamfers and core-drills all at the same operation. An example of the application of this cutter is to the clutch housing illustrated herewith.

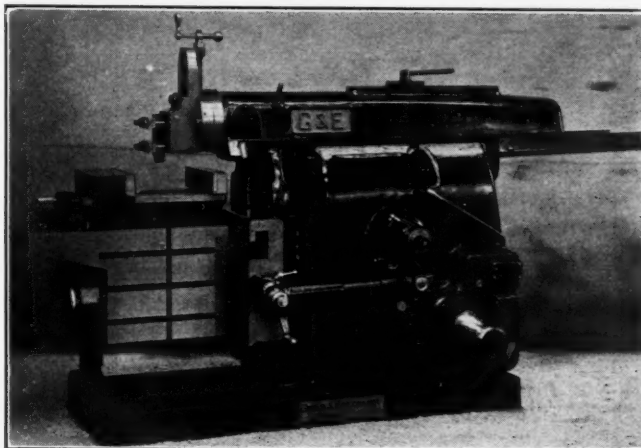
By the former method, the lugs were first milled for locating points and the under surface of the housing was rough-ground. Now the operations are all performed with one tool and the need for locating points is eliminated. In face, milling is done away with entirely. The rough-grinding on the part, which formerly took 6 minutes, has been reduced to 1.8 minutes.

Formerly five cutters were used to machine the interior of the housing. This machining operation is now performed by one Eclipse tool and the total time has

been reduced from 12 to 6.32 minutes. We understand that these tools have met with particular favor in the automotive industry. Among other automotive operations for which the tool is used may be mentioned the boring and facing of a fan-water pump housing, the facing and chamfering of the end of a crankshaft and the core-drilling and valve seating of a cylinder head.

G. & E. Manufacturing Shaper

A SHAPER designed for heavy work on a production basis and embodying unusual strength and rigidity is now being marketed by Gould & Eberhardt, New-



G. & E. manufacturing shaper

ark, N. J., and is known as the G. & E. manufacturing shaper.

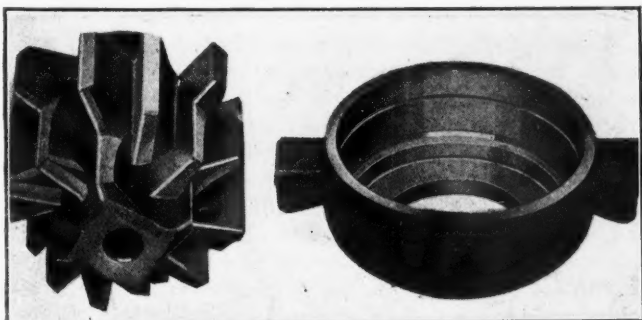
The firm believes that there is a real field for a shaper outside the toolroom, and the shaper here described is the result of its efforts to meet this need.

One of the features of the machine is the dual control, involving hand feed at the front of the table in addition to the usual control at the end of cross-rail. By virtue of this dual control the operator always works in natural positions. A four-screw tool holder is provided for heavy production work, but a single-screw tool holder is optional. The slide is guided within V-ways in the head, with a single, tapered wedge adjustment. A quick-acting block secures the head slide in any position and prevents creeping of the tool. T-bolts hold the head to the ram.

Oil is automatically supplied to all moving and rotating parts, including the ram guide-ways and the linkage system. A pump in the oil circuit delivers lubricant from the main reservoir in the base. The motor is built-in and is coupled directly to the transmission drive shaft.

A two-position, single-screw vise of special design for heavy work is standard equipment, a swiveling vise being optional. The vise wrench is a steel drop forging with a tapered hexagonal opening to fit the vise screw.

The power rapid traverse operates at 100 in. per minute and is controlled with a single lever, which rapidly adjusts the work to any position on the rail. A safety slip device is incorporated. The single-cam power-feed is constantly available and is disconnected auto-



Eclipse eight-operation cutter and clutch housing for which the cutter was designed

matically when the power traverse is put in operation. Anti-friction bearings are provided on the constantly rotating members of the transmission. The table support is of the non-slip type, and means are provided to counteract the slipping tendency of the clamping bolt.

Control for feed changes, feed direction, stroke changes, stroke length, power traverse, start and stop is centralized. The V-rail guides have a 55 deg. angle and are chilled. The cross rail is clamped by means of studs through the wide front of the frame, thus minimizing rail deflection. The rail is guided within V guide ways.

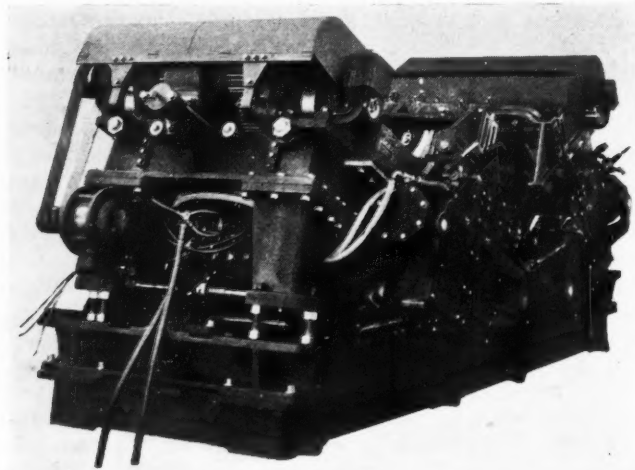
The inverted work slide and the long, narrow, single-plate guide are radical departures from accepted practice. This new structure reduces table deflection when taking heavy cuts and assures greater accuracy.

The double crank gear transmission, a G. & E. feature successfully used for a number of years, is embodied in this machine. A wide range of strokes is made possible without excessive gear speed. The transmission gears, including the double-crank gear, the feed gears and power traverse gears, are alloy steel, heat treated.

Body Sheet Welder

A MACHINE for welding the backs and the two side panels of automobile bodies has been developed by the Taylor-Winfield Corp., Warren, O., and is illustrated herewith. The back of the body is clamped in the center of the machine by means of a toggle operated by air, and the side panels are similarly clamped at the two sides by means of air-operated toggles. Each set of outside heads are worked independently by means of remote control auxiliary switches. Welding is started on one side, and as soon as that side is completed, it is started on the opposite side. After unclamping, the entire back of the body is lifted out as a unit.

The machine is capable of handling panels of 18-gage material up to 36 by 72 in. Both the upper and the lower die in each clamping head are removable, so that various shapes can be accommodated and replacements made. All of the pins and bushings on the clamping heads are hardened and ground, and the up-setting slides are faced with hardened steel plates, which prolongs the life of the machine. In order to make it possible to accommodate various shapes of bodies, an angular adjustment to from 15 to 35 deg. toward the horizontal is provided for. The welding centers can be adjusted for distances of from 34 to 50 in., according to the angle for which the machine is set.

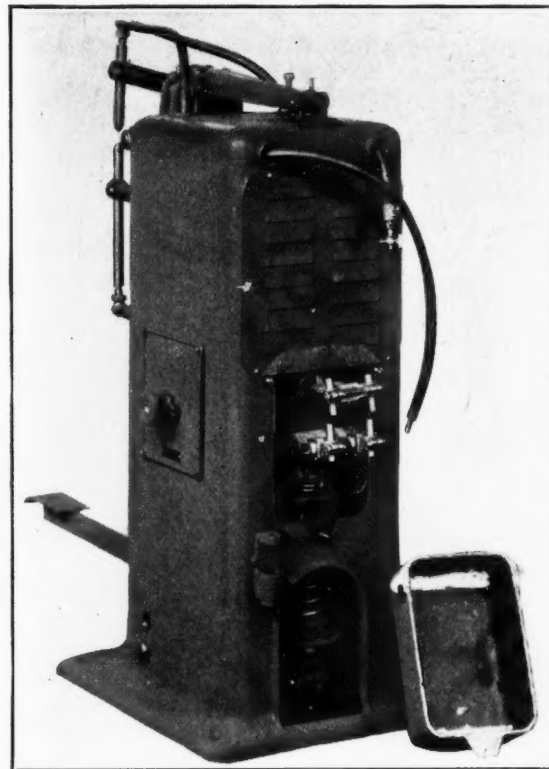


Taylor-Winfield sheet welder for body builders

Thomson Spot Welder

A NEW spot welder, Series No. 180, has been announced by the Thomson Electric Welding Co., Lynn, Mass. It is made in two throat depths, 12 and 18 in., and is furnished with either solid copper or water-cooled dies.

This machine has a rating of 7.5 Kw. or 10 K.v.a., which capacity is maintained in continuous production. For intermittent welding an extra high tap is provided.



New Series 180 Thomson spot welder

When this is connected the load may run as high as 14 Kw. or 17 K.v.a. The machine is shipped with the low tap connected. The transformer is of the air-cooled type.

For average production the welder has a capacity of two pieces of 16-gage iron or steel, but stock up to 1/8 in. iron or steel can be welded at a slow rate. Aluminum and brass up to No. 22 gage can be welded with special Elkonite dies.

A line break switch for 220 volts is mounted on the back bar of the welder. With this type of switch the current cannot be turned on until the dies touch the work. For 440-550 volt circuits a wall contactor is furnished as an extra.

A drop plate allows of a vertical adjustment of 4 in. of the horn. With the lower horn dropped the lower die point can extend 8 in. above the top of the horn. The treadle swivels to both sides and is adjustable for length by loosening one set screw.

The regulator furnished has five points and an extra high tap. This welder weighs 700 lb., is 4 ft. high and requires 20 by 24 in. floor space. However, to allow for the necessary working space for the welder, the length of the horns plus 10 in. for treadle overhang must be added to the 24-in. floor dimension. All oiling devices are said to be quite accessible and working parts are fully covered with quickly removable guards.

Just Among Ourselves

What Makes People Buy Automobiles?

MANY things influence people to buy automobiles and automotive products. Students of psychology and marketing methods frequently have broken down into clear, logical divisions the different "groups of influences or forces which determine what purchases will be made." Put down in black and white and arrayed one after the other in order, these motives seem quite distinct from one another and the problem of selling for the moment almost seems to be merely that of finding out the particular one of the group of motives which will actuate the given prospect. Actually, we don't believe the process is either as logical or as clearly defined as that. Usually, it seems to us, a prospective buyer is likely to be motivated by several influences at once; that the combination and power of each of these influences probably change a thousand times during the process of the sale and that scientific selling—in the sense of precise mathematical relationships—is pretty much of a dream. The analysis of motives and separation of one from the other for purposes of classroom study is, we believe, a highly useful and desirable thing, but after the segregation has been made, it would seem desirable also to emphasize the probable conglomeration of several of these motives in almost every case of consumer purchasing.

* * *

The Michigan No-Speed-Limit Law

THE removal of speed limit laws for the open road in Michigan is going to be one of the most interesting and, we predict, enlightening experiments ever made along these lines. The new law seems to be based on the idea first expounded by Dr. H. C. Dickinson

at the White Sulphur Springs summer S.A.E. meeting in 1924, since it reads that "No person shall drive any vehicle upon a highway at a speed greater than will permit him to bring it to a stop within the assured clear distance ahead." The tendency of such a relatively indefinite law is to put the burden of responsibility for safe driving on the car operator—where it belongs. The psychological effect of the indefiniteness will tend toward reducing rather than toward increasing accidents or our guessing is all wrong.

* * *

Results Will be Watched With Interest

THE Michigan law has tied in with its no-limit speed regulation further provisions which seem to us necessary concomitants to safe and efficient use of the highways, namely, provision against those persons who by too slow driving, by driving toward the middle instead of the right of the road, and other brands of driving malfeasance, bring about conditions highly favorable to accident. Reckless driving, under the new law, is to be punished with mandatory jail sentence and fine and is defined as follows: "Any person who drives any vehicle carelessly or heedlessly in willful or wanton disregard of the rights or safety of others or without due caution of circumstances and at a speed or in a manner so as to endanger or be likely to endanger any person or property." Certainly some forms of slow driving as well as some forms of fast driving will come under these provisions. Michigan records and results will and should be scanned closely for the next year or two; they are certain to furnish valuable data upon which future speed regulations may be built in other states.

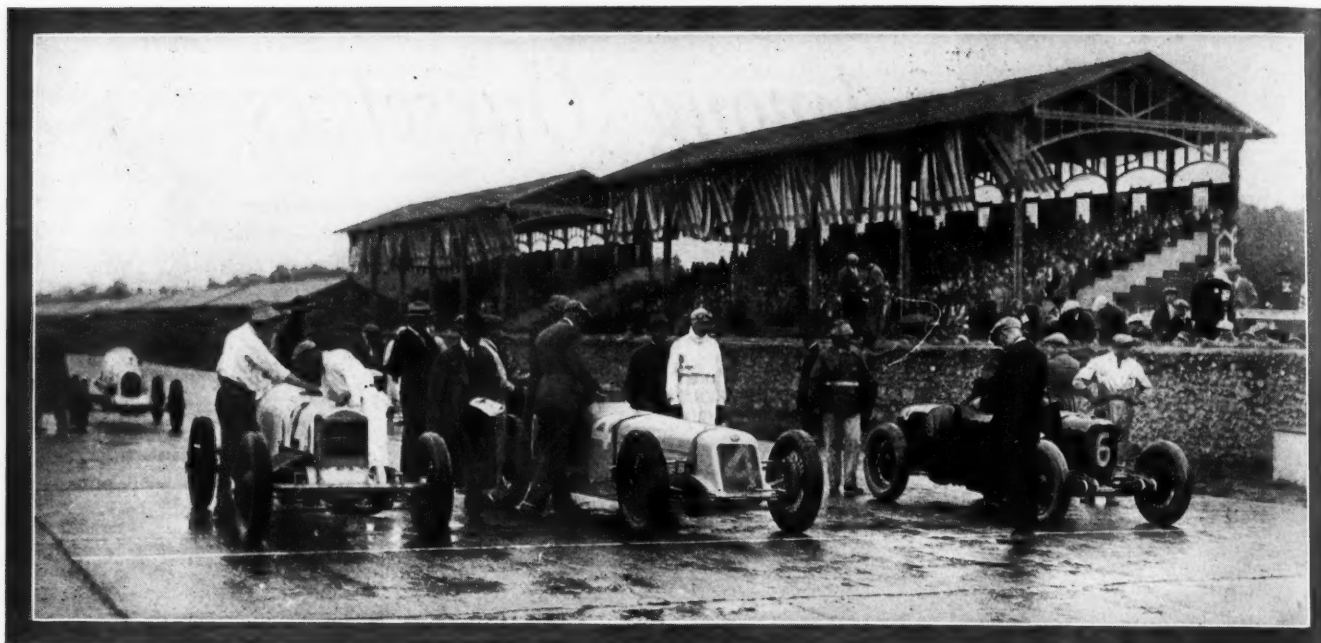
Retail Financing on Firmer Ground

THE retail financing situation, which has been on the mend for a good many months, now seems to be continuing on its way to greater stability. Sound terms and a bit more careful credit investigations in individual cases have increased greatly over a year or two ago, partly because of the bad experiences of individual companies and partly because banks in general are showing less and less inclination to back those finance companies who persist in anything resembling wildcat practices. The attitude of some banks in recent months may have worked a bit of hardship on a few individual finance companies, but it is almost certain that the basic situation has been improved for the automotive industry as a whole. Particularly is this true since some of the bankers who are scrutinizing finance company requests for funds most carefully are sold on instalment selling.

* * *

Automotive Engineers May Put to Sea

AMONG the ideas on tap in regard to the 1928 summer meeting of the Society of Automotive Engineers is one for a boat cruise to Nassau, beginning about April 28 and lasting six or eight days. The idea would hold the technical sessions on the boat and devote the time actually spent in Nassau to sports and social activities. The boat cruise has already gained a number of powerful adherents in the Society, but the opinion of the whole membership is to be sought before any final decision is made. Atlantic City, Spring Lake and Quebec are other places under consideration. For once we find ourselves discussing a topic on which we haven't any very strong opinions; we always enjoy S. A. E. summer meetings any place.—N. G. S.



Preparing for the European Grand Prix. In the front line are Earl Cooper, Benoist in a Delage and Minoia in an O.M.

American Team Takes *Third Place* in European Grand Prix

Cooper and Kreis pilot Cooper Special into winning position at Monza track. Souders forced out. Benoist finishes first in Delage. New Fiat wins its event.

By W. F. Bradley

BY winning the European Grand Prix—his third successive victory this year—Robert Benoist secured the world's driving championship. The race on the Monza track, held Sept. 4, was for a distance of 310 miles, which Benoist covered with his super-charged straight-eight Delage in 3 hr. 26 min. 59 4/5 sec., giving an average of 90.048 m.p.h. The race was started in heavy rain which only lifted slightly toward the end.

Only six cars faced the starter, among them being two Cooper Specials with Miller engines, driven by the Americans, Earl Cooper and Peter Kreis, and George Souders on a straight-eight Duesenberg. The others besides Benoist were Minoia and Morandi on straight-eight O.M. cars.

During practice Kreis broke a rod which cut the crankcase open and Cooper broke a valve. Repairs were carried out at the Isotta-Fraschini factory, which had been placed at the disposal of the American drivers. Taking a bend at too high speed, and his brake not releasing quickly, Souders turned his Duesenberg over during practice, taking much skin off his back and shoulder and bending the rear axle of his car. The Isotta-Fraschini people also put this car in shape again.

At the start Benoist shot away, followed by Souders. The two Cooper Specials took the standing start in a very faltering manner, and one of the O.M. drivers stalled his motor. Kreis stopped after covering half a round of the Monza figure "8" six-mile circuit, the trouble evidently being that the crankcase had opened up at the point where it had been repaired after the rod went through.

Duesenberg is Disabled

Souders made a sporting attempt to catch Benoist's Delage, but it was obvious that the Duesenberg did not have the speed for these particular conditions. From a lead of 1 min. 5 sec. after five laps (31 miles) Benoist increased his advantage to 3 min. 5 sec. after 10 laps, and lapped the American, who had dropped down from second to third place on the 12th lap. In passing, the Delage threw up such a mass of water that it completely flooded the magneto on the Duesenberg, for this was exposed by the hood not coming down to the side rails.

After about 15 laps Cooper turned his car over to Kreis, but the machine still remained a tail ender. Toward the end of the race Kreis went in chase of the O.M. driven by Morandi, which was about to finish in

second place, and passed it without difficulty. He then went after Minoia's O.M. also passing it easily, and thus moved up from fourth to third place. During this burst of speed the best lap time by Kreis was 4 min. 10 sec., compared with 4 min. 33 1/5 sec. by Minoia. This is slow, however, compared with the record of 3 min. 51 4/5 sec. set up later in the day, in another race, by Bordino on a new 91 1/2 cu. in. Fiat.

The failure of the Americans to make a better showing has been criticized. All the drivers apparently showed lack of forethought in starting on a wet track with smooth tread tires. No rain had fallen in this part of Italy for three months until the night before the race, but all the Europeans had rubber non-skid treads in readiness. Souders was neglectful in leaving his magneto exposed in heavy rain. Although he had only a two-speed transmission, Cooper claimed that his front-wheel drive gave him an important advantage on this winding combined track and road. Neither he nor Kreis, however, showed speed, and even on the straightaways they failed to open up. At the end of the day, when a 30-mile standing start sprint was held, with Bordino on the line with the new Fiat, and the best Italian drivers at the wheels of various cars, Kreis ran about 50 yd. on his Cooper Special but was unable to get any acceleration out of his engine and dropped out of the event.

Difficulties Realized

Racing experts realize the difficulties of racing under what are practically road conditions with cars designed for tracks. A geared up centrifugal blower is useless for standing starts and races with positive and negative acceleration at frequent intervals. It is probable, too, that two and three-speed transmissions are a handicap.

The results of the European Grand Prix race were as follows:

1. Robert Benoist, Delage..... 3:26:59 4/5
Average 90.048 m.p.h.
 2. Morandi, O.M. 3:49:32 3/5
 3. Cooper and Kreis, Cooper Special... 4: 2: 5 4/5
 4. Minoia, O.M. 4: 2:28 3/5
- The reappearance of Fiat in the racing game with

a new type of 12-cylinder engine was the outstanding feature of the Milan meeting, which followed the European Grand Prix. Although having been at work on these engines for nearly two years, a month ago Fiat had no intention of racing with them this season. It is claimed that Government pressure was brought to bear to get them into the game in order to uphold national prestige.

New Engine Installed

Senator Agnelli, president of the Fiat company, stated that it was impossible for them to start three cars in a long distance event, but he gave a guarantee that Bordino would start with one of the cars in the short distance events for the Milan Grand Prix. The night before the race it was necessary to change the engine, putting in a new one which had not been loosened up. Despite this handicap the Fiat made good all along the line.

In the first 31-mile race Bordino had to meet two other 91 1/2 cu. in. cars and a number of 122 cu. in. Bugattis and an Alfa-Romeo, driven by the best Italian drivers. Driving in the rain he covered the distance in 20 min. 4 sec., averaging 92.88 m.p.h., while the next best time was that of Count Maggi on a supercharged Bugatti in 20 min. 35 sec., averaging 90.4 m.p.h. Campari on a 122 cu. in. Alfa-Romeo was a very close third.

In the final over the same distance, the rain having stopped but the track being wet, Bordino was slow in getting away but after five miles had got the lead and gradually increase it. His second lap was the record of the day, 3 min. 51 4/5 sec., averaging 96.498 m.p.h. The 31 miles were covered in 19 min. 42 3/5 sec., or at 94.57 m.p.h. which also was a record for this distance. Campari on a 122 cu. in. Alfa-Romeo came second in 20 min. 24 sec., with Maggi on a Bugatti third in 21 min. 22 2/5 sec. Materassi withdrew his Bugatti as a protest against Campari who, he claimed, prevented him passing.

Three of the new Fiats are entered for the British Grand Prix race at Brooklands, where they will have to meet full teams of Delage and Bugatti cars.



Start of the Milan Grand Prix. Bugatti is leading, followed by an Alfa-Romeo and Bordino in a Fiat

Pietro Bordino on new 91 1/2 cu. in., 12-cylinder Fiat with which he won the Milan Grand Prix on Monza track



U. S. Exports of Cars, Trucks, Tires and Parts

COUNTRIES	PASSENGER CARS										TRUCKS					
	Up to \$500		\$500 to \$800		\$800 to \$1200		\$1200 to \$2000		Over \$2000		Up to 1 Ton		1 to 2½ Tons		Over 2½ Tons	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
Austria.....			2	\$1,050												
Azores and Madeira Island.....			2	1,121			1	\$1,117			3	\$1,398				
Belgium.....			161	80,636	612	491,787	52	64,669	68	\$161,618	288	126,504	4	\$1,760	1	\$3,758
Bulgaria.....																
Czechoslovakia.....			26	16,644	10	8,695	7	7,769	1	2,667						
Denmark and Faroe Islands.....			795	385,066	144	111,195	98	110,863	18	35,337	868	376,713	13	14,722		
Estonia.....													6	7,671		
Finland.....			14	10,029	143	111,695	29	36,934	14	30,924	5	3,985	3	3,500		
France.....			14	11,972	22	19,933	29	37,167	33	80,836	35	14,768				
Germany.....	1	\$100	14	10,137	329	290,619	62	78,878	87	184,085	50	22,578	5	5,013		
Gibraltar.....									1	1,749						
Greece.....			2	1,249	45	35,100	9	10,517	1	3,457	4	2,988				
Hungary.....			3	1,435	25	19,527	8	9,188	5	10,911						
Iceland.....			1	514												
Italy.....	5	1,096			22	19,166	6	7,897	2	7,547						
Latvia.....					2	1,760										
Lithuania.....					1	883										
Malta, Gozo and Cyprus Isls.....					1	880					3	1,644	1	720		
Netherlands.....					78	62,593	50	59,768	23	50,859			4	5,460		
Norway.....	3	1,055	41	24,076	39	33,442	4	4,583	1	1,773			1	1,870	2	6,600
Poland and Dantzic.....					15	11,260	13	15,172							1	3,140
Portugal.....	5	2,245	35	18,021	53	40,394	10	12,627	2	3,754	16	8,195	11	12,490		
Rumania.....			964	35,053	22	18,750	10	11,865	2	5,946	23	11,426	8	9,879		
Russia.....	101	35,700	1	600	2	1,430					27	11,087			5	32,489
Spain.....			71	42,563	232	196,027	113	149,482	49	119,349	54	23,184	13	12,159		
Sweden.....	1	175	31	18,486	238	189,154	74	89,086	15	31,507	4	2,907	23	24,221		
Switzerland.....			45	28,048	25	21,880	34	41,533	18	41,072			4	4,500		
Turkey.....			57	27,715	14	13,836	5	5,715			32	14,688	2	3,103		
United Kingdom.....	80	38,859	649	371,207	520	336,460	85	112,519	22	50,839	626	311,730	40	36,520	1	8,918
Irish Free State.....				1,200							4	3,760	1	1,386		
Yugoslavia.....			10	5,724	7	5,441	1	1,220	1	2,158						
United States.....																
British Honduras.....																
Canada.....	329	106,883	1,671	1,004,520	594	529,564	399	522,764	58	182,339	92	60,547	245	335,006	47	258,029
Costa Rica.....					4	2,939	5	5,823	2	3,500	1	797	4	6,243		
Guatemala.....	1	500			8	7,655	14	17,723	4	11,122			10	12,735	1	2,566
Honduras.....											2	1,183	2	2,606		
Nicaragua.....				684	4	3,634	4	5,112								
Panama.....	1	400	28	14,222	7	5,331	22	24,611	4	8,651	13	8,002	12	18,368		
Salvador.....											4	1,836			3	14,760
Mexico.....	200	73,262	129	78,100	82	78,971	29	42,730	20	50,104	52	26,721	20	28,340		
Miquelon.....																
Newfoundland.....	1	90	24	14,632	15	13,301	3	3,513			4	1,914				
Barbados.....			1	550												
Jamaica.....			16	8,433	17	12,666	4	5,304	1	1,871			3	2,413		
Trinidad.....			2	1,269	4	3,228	1	1,028			1	785			1	5,455
Other British West Indies.....	4	545	2	1,312	1	716					4	1,148				
Cuba.....	6	2,514	252	120,547	48	41,788	12	17,207	14	40,542	150	62,102	24	28,167	12	47,507
Dominican Republic.....	64	27,202	81	43,384	14	11,043	4	5,383	4	7,627	54	24,899	12	21,204	3	5,823
Dutch West Indies.....			1	567	2	1,901	3	3,883	1	1,961	5	4,033	2	2,111		
French West Indies.....			6	2,892							2	918				
Haiti.....					6	6,161	4	4,183			1	747	1	1,314		
Virgin Islands.....	3	605	1	475	1	742	1	1,130			5	700				
Argentine Republic.....	722	268,291	412	240,568	574	454,383	196	220,992	44	113,182	701	333,310	73	97,373	41	114,221
Bolivia.....			5	2,721	3	2,170	1	1,396	1	2,967			4	4,916	1	1,941
Brazil.....	385	143,975	139	71,158	160	147,151	71	88,570	32	71,031	676	302,687	31	33,326	10	39,944
Chile.....	1	315	56	29,027	20	17,485	17	22,070	3	8,228	35	17,763	50	71,811	13	33,050
Colombia.....	1	532	12	8,555	44	38,424	43	50,938	6	16,998	32	29,415	52	74,293	11	35,880
Ecuador.....					8	8,015	5	6,270	2	4,408	11	6,490	3	3,172		
British Guiana.....					1	785										
French Guiana.....																
Dutch Guiana.....			1	668	2	1,917										
Paraguay.....																
Peru.....			3	2,222	20	25,484	13	15,277	3	8,079	9	6,802	17	19,366	4	8,945
Uruguay.....	154	74,573	49	38,748	6	7,585	4	10,385	108	50,832	108	50,832	2	2,940	4	14,830
Venezuela.....	9	5,407	25	19,718	21	27,505	5	11,539	10	10,896	12	18,903	2	6,374		
Aden.....																
British India.....	1	400	15	11,178	155	125,494	3	3,287	1	1,844	127	90,774	6	5,725		
Ceylon.....			6	4,451	15	11,642	6	8,342			30	22,517	9	12,090		
Straits Settlements.....			3	1,903	29	24,344	5	5,490			8	5,829	5	6,509		
China.....	7	3,141	31	21,965	32	25,208	2	3,271	4	7,785	43	35,940	17	39,405		
Java and Madura.....			126	80,421	110	90,082	10	10,445	7	14,372	104	52,440	16	16,056		
Other Dutch East Indies.....			16	9,717	17	14,178					10	7,227	2	2,105		
French Indo-China.....			2	1,590	1	1,030										
Hejaz, Arabia and Iraq.....					7	5,957										
Hongkong.....	4	1,916	14	10,251			1	1,284								
Japan.....	16	6,554	30	18,113	41	36,441	15	21,036	5	12,309	3	170	10	14,715		
Kwangtung.....			5	3,094												
Palestine and Syria.....			1	664	52	43,640	3	4,161	1	2,697			10	8,942		
Persia.....	26	10,100	3	1,890	4	3,420	2	2,237	1	1,627			5	4,967		
Philippine Islands.....	63	29,696	126	73,201	82	75,007	21	26,176			1	436				
Siam.....			6	4,442	5	3,929					20	8,388	4	5,000		
Turkey.....	12	4,468	3	1,997	1	871					4	2,889				
Other Asia.....											6	2,754	2	1,296		
Australia.....	552	182,905	549	268,827	362	267,020	344	384,288	16	36,322	2,647	1,252,180	517	384,161	129	

Canadian Exports

ELECTRIC VEHICLES		PARTS		TIRES				PASSENGER CARS						TRUCKS		PARTS		COUNTRIES
No.	Value	Value	Casings		Inners		Solids		Up to \$500		\$500 to \$1000		Over \$1000		No.	Value	Value	
			No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value				
		\$1,253	4,638	\$68,538	2,981	\$7,425	20	\$235										Austria
		669	36	361	126	369												Azores and Madeira Isls.
		86,376	3,854	65,592	1,317	4,831	4	185			4	\$3,144				\$54		Belgium
		1,718	14	273														Bulgaria
		10,306	4,656	118,020	3,215	9,659	23	858										Czech Slovakia
		174,153	11,869	112,130	2,511	5,292										60		Denmark and Faroe Islands
		150	219	2,997	271	608												Estonia
		54,183	1,004	16,195	812	2,433	20	734			3	2,304						Finland
		158,534	2,289	37,450	644	1,814												France
		1,711,717	16,564	247,965	12,477	37,570	4	234					1	\$1,491		1,567		Germany
			37	428														Gibraltar
		48,531	1,620	19,461	971	2,043	16	751										Greece
		3,934	807	19,637	680	2,112	7	273										Hungary
		1,103	170	3,463	280	660												Iceland
		64,817	3,465	40,270	2,076	3,929	178	6,268										Italy
		1,462	29	1,055	1	3												Latvia
		457	20	147	20	27												Lithuania
		703	5	190	5	9			6	\$2,505	2	1,368						Malta, Gaze and Cyprus Isls.
		46,935	5,095	79,882	1,042	2,478												Netherlands
		19,756	2,295	34,591	1,303	6,078	22	1,398			7	4,208						Norway
		1,193	1,764	25,943	1,182	2,578	2	91					1	1,139				Poland and Dantzig
		9,598	1,946	24,672	1,634	3,530												Portugal
		8,289	783	9,857	367	801			207	86,414	5	2,882	8	9,115	128	\$49,560		Rumania
1	\$4,755	33,796	4	174	8	42												Russia
		73,032	12,190	139,126	11,609	37,334	152	4,539										Spain
		60,620	5,118	72,207	3,499	7,727	29	1,335	14	6,790	70	36,230	27	27,270			55	Sweden
		9,295	2,988	50,015	801	2,771	61	3,132			8	4,221					106	Switzerland
		4,620	862	9,322	503	999			1	417					2	774		Turkey
1	1,392	465,189	14,350	184,937	10,902	16,796	540	10,575	192	60,343	16	13,451	10	15,934			2,223	United Kingdom
		18,103	51	1,122	24	72			27	11,254					26	9,324	160	Irish Free State
		975	207	2,051	256	503			15	2,310	1	1,000	3	5,000	1	4,000	3,638	Yugoslavia
																	37	United States
5	36,804	430	5	46	8	11												British Honduras
		3,017,973	2,834	44,110	6,963	14,103	176	8,943										Canada
		7,543	530	8,645	213	543			8	3,375	2	1,032			4	1,549		Costa Rica
		13,511	509	9,444	365	950	10	261							4	1,549		Guatemala
		2,104	155	1,053	79	246	6	218										Honduras
		489	32	569	16	41												Nicaragua
		23,346	504	5,546	180	336	60	570	44	18,273			1	1,475	120	49,761		Panama
		14,319	117	1,860	316	1,031	132	2,969										Salvador
		83,883	7,687	100,628	5,339	11,613	240	7,867	12	4,315								Mexico
																		Miquelon
		2,725	174	1,851	117	205			12	4,064			1	1,400			427	Newfoundland
		2,815	9	104			14	382	4	1,752	4	2,172			2	831	92	Barbados
		17,734	143	2,196	111	498	44	1,118	13	5,267	3	2,317			10	4,136	26	Jamaica
		6,575	481	7,652	278	725			7	2,837	9	5,475			18	7,382	7	Trinidad
		4,772	82	793	36	80			2	811	2	1,160			1	405		Other British West Indies
		98,730	21,042	191,059	10,899	24,228	1,786	61,421									69	Cuba
		35,027	1,668	36,918	1,288	2,470	38	991			2	1,230					25	Dominican Republic
		6,599	301	4,493	410	797			1	485	1	987			2	774		Dutch West Indies
		984	10	247	12	54			4	1,621								French West Indies
		12,791	638	11,064	865	1,867	2	91	11	4,430	1	648			12	4,646		Haiti
		696	19	224	8	104												Virgin Islands
		390,234	25,853	313,977	23,876	43,061	1,341	37,029			2	453,698					2,916	Argentina
		5,209	151	3,344	134	427			2	804	1	543						Bolivia
		298,266	12,661	170,937	2,977	7,448	129	6,039			3	2,612					1,077	Brazil
		90,024	1,534	30,458	791	1,932	36	2,343	17	7,472	3	1,700			8	3,152	488	Chile
1	3,200	70,278	2,612	45,458	1,402	4,516	44	2,661	6	2,565	3	2,222	1	1,500	40	16,587	402	Colombia
		2,980	420	6,478	382	953	23	897					5	5,643			34	Ecuador
		890																British Guiana
		53	75	1,914														French Guiana
		474							2	998								Dutch Guiana
		1,41	152	1,630	201	373			2	835	1	892			20	7,744		Paraguay
		45,987	1,395	24,441	1,031	2,787	49	2,145	44	17,263			2	2,922	74	28,465		Peru
		39,873	2,578	31,779	2,048	3,230	92	2,505			8	6,355					37	Uruguay
		33,720	1,653	33,029	1,311	3,512			35	14,162	2	1,104			2	774		Venezuela
		1,457							4	1,805								Aden
		151,054	5,917	76,091	981	2,278	139	5,400	415	180,494	43	27,757	20	21,315	394	139,550	39,567	British India
		11,572	1,195	17,063	488	1,260	51	2,367	35	14,480	4	2,598			2	500		Ceylon
		53,745	1,849	22,622	482	1,178	75	1,882									17,743	Straits Settlements
		20,924	1,671	16,524	894	1,378	41	839	8	3,832	5	2,880						China
		23,668	5,632	67,126	2,131	3,811	21	1,192	16	7,734	15	11,426	7	8,834			23,717	Java and Madura
		5,138	850	12,830	394	573												Other Dutch East Indies
																		French Indo-China
		6,117	777	10,045	530	1,147			35	14,610					20	7,743		Hejaz, Arabia and Iraq
		1,186																Hongkong
		512,898	3,921	43,577	5,674	7,433	954	16,445			10	5,568	4	5,904			7,068	Japan
		3,098																Kwantung
		17,894	2,140	27,734	478	1,430	46	1,028										Palestine and Syria
		6,101	129	2,588	114	320			6	2,501			1	1,139				Persia
		61,752	16,160	212,250	11,430	22,549	451	15,628										Philippine Islands
		7,591	1	16													7,198	Siam
		1,816	122	1,617	60	124												Turkey
5	5,623	160																Other Asia
		428,158	8,907	145,017	1,046	3,051	348	15,655	249	96,172	2	1,212	3	4,131	3	2,099	60,569	Australia
		137,684	1,277	16,844	827	2,117	166	5,806	13	6,035	7	4,563	2	2,266			1,472	New Zealand
		2,187	12	119	6	11												British Oceania
		1,143	10	157	28	76	8	270										French Oceania
		3,471							1	405					6	2,323		Belgian Congo
		65,640	544	14,303	396	1,782			11	4,915					78	26,597	2,349	British West Africa
		170,998	6,901	84,195	5,390	9,504	36	1,124	6	2,874	31	16,620	1	2,500			19,162	British South Africa
		32,604	1,655	28,432	531	1,701			33	12,886	37	23,722	4	4,092	67	26,182	6,632	British East Africa
		6,202	1,820	26,596	700	1,910	93	4,609	2	847	3	1,957			5	1,863	25	Canary Islands
		116,969	1,044	14,287	1,057	2,121	38	1,683	50	20,840			1	1,139	90	34,845		Egypt
		143	30	660	48	144												Algeria and Tunis
			6	110	6	78			5	2,026					20	7,852		Other French Africa
		1,155	11	265	11	39												Liberia
		4,190	14	304	18	6												

AUTOMOTIVE **NEWS SECTION** INDUSTRIES

Philadelphia, Pennsylvania

Saturday, September 24, 1927

Sales Recede Seasonally as Third Quarter Closes

PHILADELPHIA, Sept. 24—Automobile sales are receding in accord with the seasonal trend, after an August and early September volume that established new records for several companies. The stimulus of new models and price cuts is not being felt as strongly as a short time ago and the market therefore is taking its usual autumn downward turn.

On the whole, however, the situation can be considered fairly satisfactory for a majority of the producers. The year's sales so far have been very high for a good many companies, both large and small. Two or three of the largest factories have suffered and perhaps an equal number of the smaller ones. The distribution of sales has been unusually spotty, and the profit situation is much the same. Among retailers the year's results have been even more variable.

Despite lower material prices this year, there has been no corresponding gain in profits for manufacturers. This is due to lower prices in some cases and to lower volume of sales in others.

Credit conditions are good as the result of strenuous efforts by the leading finance companies to keep terms on a sound basis. Repossessions are causing little concern.

Dodge Adds \$1,495 Sedan to Six-Cylinder Line

DETROIT, Sept. 21—Dodge Brothers, Inc., has added a lower priced five-passenger sedan to its six-cylinder line, the new car selling at \$1,495. It is upholstered in gray leather, with exterior finish in blue lacquer below the belt line and black lacquer above. The window reveals and wheels are also finished in blue. Standard equipment includes front and rear bumpers, automatic windshield wiper, rear traffic signal and ignition lock.

Hudson Nears 250,000 Mark

DETROIT, Sept. 19—Within the next few days Hudson Motor Car Co. will produce the 250,000th car, this year. Production already exceeds that for the entire year of 1926. Earlier in the year Hudson became one of the few companies working on its second million total of cars and a majority of this production came in 1925, 1926 and 1927, when more than 750,000 cars were produced.

Falcon and Fageol in N. A. C. C.

NEW YORK, Sept. 22—Falcon Motors Corp. and the Fageol Motors Co. of California have been elected to membership in the National Automobile Chamber of Commerce.

August Production 315,566 Without Ford

WASHINGTON, Sept. 21—Production of cars and trucks in the United States and Canada for August totaled 315,566, according to the report by the Department of Commerce. The total includes no Fords, as no report was made to the department by Ford Motor Co. This indicates there was practically no Ford production during the month due to preparation for the new model.

The August total compares with 274,393 cars and trucks built in July and with 437,579 in August last year. In August, 1926, Ford Motor Co. production exceeded the 100,000 mark.

Passenger car and truck production in the United States in August was 271,325 and 31,715 respectively. In July passenger car and truck production was 233,384 and 29,855. In August, 1926, passenger car and truck production was 380,282 and 42,012. Canadian production of cars and trucks in August was 10,139 and 2387 respectively; in July, 8719 and 2268, and in August, 1926, 12,782 and 2503.

For the eight months of 1927, the output of passenger cars and trucks in the United States and Canada totaled 2,743,411, as against 3,237,935 for the first eight months of 1926.

Production by months for the two years is shown in the adjoining column.

M. & A.M.A. Groups Show Improved Sales

NEW YORK, Sept. 20—Booming business in the parts and accessory industry is indicated by the report just issued, covering the month of August, by the Motor & Accessory Manufacturers Association. The index of shipments in all groups is 154 against 143 in July and 152 in August, 1926. The continuance of heavy volume throughout September is indicated.

The index for manufacturers of original equipment was 155 in August against 148 in July and 157 a year

8 Months' Output Rises to 2,743,411

1926			
	Cars	Trucks	Total
Jan.	284,703	31,388	316,091
Feb.	334,524	38,745	373,269
Mar.	399,105	45,996	445,101
Apr.	401,836	50,189	452,025
May	394,569	47,576	442,145
June	358,388	43,735	402,123
July	329,959	39,643	369,602
Aug.	393,064	44,515	437,579
Total ..	2,896,148	341,787	3,237,935
Sept.	363,547	47,304	410,851
Oct.	300,160	43,652	348,812
Nov.	226,278	34,500	260,778
Dec.	143,413	27,768	171,181
Total ..	3,929,546	495,011	4,424,557
1927			
	Cars	Trucks	Total
Jan.	208,734	40,873	349,607
Feb.	275,470	41,950	317,420
Mar.	360,765	48,699	409,464
Apr.	374,113	48,275	422,388
May	374,419	46,963	421,382
June	290,188	43,003	333,191
July	242,144	32,249	274,393
Aug.	281,464	34,102	315,566
Total ..	2,407,297	336,114	2,743,411

ago, indicating a high seasonal level of automobile manufacturing. Shipments of Ford parts are not believed to have entered into the total to any important degree.

Replacement parts shipments took an unexpected and every pronounced upward turn in August, the index number reaching 169 as compared with 142 in July and 120 in August last year. The latest figure was the highest for this group since May, 1926.

Accessories also mounted sharply to a figure of 115 from 97 in July but were still under a year ago, when the number was 141. Shop equipment shipments declined slightly to 134 in August from 136 in July and were well under the August, 1926, level of 166. The very rapid rate of shipments by this group during the first half-year has seemingly brought the business down but the volume is considered satisfactory.

Moock Presents Program

NEW YORK, Sept. 21—Over three hundred jobber executives and salesmen attended a luncheon meeting at the Astor Hotel in New York as guests of New York Boosters Club, No. 13, to hear the first presentation of the Automotive Equipment Association's Greater Market Development program as it applies to the jobber salesman in the field. The presentation was made by Harry G. Moock, director.

Arthur E. Clifford Dies in Cleveland

Business Manager of Automotive Industries Stricken at Machine Tool Show

PHILADELPHIA, Sept. 24—Arthur Eastman Clifford, for more than thirty-five years actively engaged in the industrial and trade publishing field, and since Nov. 12, 1923, business manager of *Automotive Industries*, succumbed to a heart attack in Cleveland on the evening of Sept. 20.

Mr. Clifford had gone to Cleveland from Philadelphia on the day before he died to attend the annual exposition of the National Machine Tool Builders' Association. While at the exposition during the early part of the day he became ill and it was decided best that he return to Philadelphia. He had just reached the Union Station preparatory to taking train when the fatal heart attack occurred.

Mr. Clifford was born in Gilmanton, N. H., in 1868. He began his publishing career in New York as business manager of the American Exporter. He became business manager of *Electrical World*, then a Johnson publication, in 1892. In March, 1894, he became business manager of *Street Railway Journal*, one of the first McGraw Publishing Corp. papers and left a year later to return to his former position on *Electrical World*. When this paper was taken over by McGraw Publishing Corp. in 1899 he continued in this post under McGraw management.

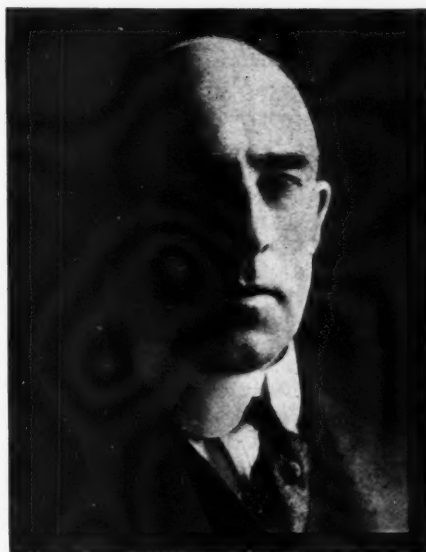
Between 1899 and 1923, he was identified with the McGraw-Hill publications, most of the time as business manager of *Electrical World*, though serving in many other capacities. He also acted as assistant to J. H. McGraw and was ever a foremost figure in building the standard of ethics in the trade publishing field to its present high position. He resigned from McGraw-Hill in November, 1923, to become business manager of *Automotive Industries*, in which position he continued active to the actual day and hour of his death.

He is survived by a widow and two daughters.

Funeral services were held Sept. 23, at the Graceland Chapel, Chicago.

New York New Car Sales Total 12,294 in August

NEW YORK, Sept. 22—New car sales for August in the metropolitan district were 12,294 as against 11,133 in August last year, according to report by the Automotive Merchants Association. Ford sales in August totaled 191 as against 1435 in August, 1926. Buick was first in August with 2268 as against 1458 a year ago. Chevrolet had 1493 as against 946; Nash 1297 against 981; Hudson-Essex 1033 against 815; Chrysler 1011 against 586, and Studebaker 737 against 572.



Arthur E. Clifford

New Goodyear Stock Voted by Directors

NEW YORK, Sept. 21—Funding of the Goodyear Tire & Rubber Co. of 25 per cent accumulated dividends on preferred stock was made possible yesterday when the directors approved the issuance of new preferred stock, exchangeable, beginning Oct. 1, on the basis of five shares of the new for four shares of the old preferred stock.

This action on the part of the directors completes the realignment of finances under the plan worked out this summer by which securities put out in 1921 are replaced by new ones having lower rates of interest and more favorable retirement provisions. It also paves the way to the eventful resumption of dividends on the common stock.

Unit sales of the company for the first eight months of 1927 were more than 20 per cent ahead of the corresponding period last year, and earnings for the first eight months were greater than in the entire 12 months of 1926, according to P. W. Litchfield, president. During August, he said, the company sold 1,623,241 tires, the largest in the history of the company. September sales are well ahead of last year.

McDonough Joins Selden

ROCHESTER, Sept. 22—C. G. McDonough has been appointed director of sales of Selden Truck Corp. He was formerly sales manager of the Kelly-Springfield Truck & Bus Corp. and previously had been sales manager of the commercial car division of Willys-Overland, Inc.

Moon Increases Stock

ST. LOUIS, Sept. 22—Stockholders of Moon Motor Car Co. have authorized an increase in the capital stock from 220,000 shares of no par common stock to 400,000 shares. The date of issuance has not been set.

Miller to Produce Airplane Engines

Will Form Separate Company in Southern California—Sees Sport Plane Demand

LOS ANGELES, Sept. 21—After gaining mastery of the ground and water with his record-breaking engines, Harry A. Miller has definitely determined to conquer the air. Formal announcement is expected to be made in a few weeks of the organization of a separate company of substantial proportions, with Miller at the head, which will be engaged exclusively in the production of "Miller Air Engines." The manufacturing plant will be established at a point in southern California. Entry of Miller into the airplane field will not mean his relaxation from the racing game, but will be an extension of his activities that has been planned for some time.

Miller foresees a tremendous development of aviation in the immediate future, and looks for a growing demand among sportsmen for planes for their private use. It is this market, essentially, that will engage the attention of the new company, but it is known that Miller, in his characteristic fashion, is already intent on building special airplane engines to establish new air speed records.

Complete details of the standard Miller air engine will not be available for some weeks. It is reported the engine will be low-priced, possibly around \$2,000. Complete absence of vibration will be achieved, it is declared, and many strikingly new features will be introduced to provide for greater reliability.

Miller has surrounded himself with a staff of widely known aviation experts who have been at work in the Miller plant in Los Angeles for several months.

Designs New Car Engine

LOS ANGELES, Sept. 21—Harry A. Miller, famous builder of racing cars and engines, has completely designed an engine to break the 203-mile-per-hour record established by Major Seagrave, but no decision has been reached as to when it will be assembled. Ever since the English speed demon hung up his new record, Miller has been keenly interested in eclipsing it, but he does not see the wisdom of his organization shouldering the entire financial burden.

Should an incentive be provided, Miller is prepared to have the engine completed in short order.

While engineering details of the engine designed by Miller and his staff are not available, it is known there is nothing freakish in its construction and the engine would not be abnormally large in size, as was the case with the Seagrave engine.

Excise Tax Hearing Set for November 7

Corporation Income Tax Proposals Set for Nov. 2—
Hearings Run 10 Days

WASHINGTON, Sept. 21—Automobile manufacturers and dealers desiring to express their views towards the repeal of the 3 per cent excise tax still remaining on passenger cars will be given a hearing Nov. 7, by the House Ways and Means committee, which this week announced its 10-day program for hearings.

The committee will take up its tax program revision on Oct. 31. The first two days of the hearings will be devoted to general statements. The income taxes of corporations will be considered Nov. 2 and individual income taxes Nov. 3. The two ensuing days will be allotted to discussion of administrative features. The automobile representatives will be heard the 7th and Nov. 8 and 9 will be given to hearings on the estate tax question. Miscellaneous subjects will be considered the last day, Nov. 10.

At the conclusion of the hearings the committee will close its doors to all interests and proceed to write the bill which will be presented to the House and later will be revamped by the Senate finance committee, before it is presented to the Senate. After the Senate acts, it will then be sent to conference between representatives of the two houses and if agreed upon, passed.

American Chain Acquires Lyon Patent on Bumpers

BRIDGEPORT, CONN., Sept. 20—American Chain Co. has acquired the famous Lyon patent on bumpers and has licensed the Biflex Products Co. to manufacture under this. The purchase by American Chain followed litigation originally brought by George A. Lyon and the Metal Stamping Co. against Biflex and others in which American Chain undertook and carried on the defense.

The district court ruling was that the Biflex bumper and similar bumpers did not infringe the Lyon patent, but the court of appeals reversed this decision and held the Lyon patent valid and infringed upon. Negotiations for the purchase were opened by American Chain following this decision.

Auburn Dealer Stocks Low

AUBURN, IND., Sept. 20—Stocks of Auburn cars held by dealers are smaller than at any period in the company's history, according to Roy H. Faulkner, vice-president of Auburn Automobile Co. Mr. Faulkner has just returned from a swing through the eastern section of the United States, following which he made a survey of the Auburn situation throughout the entire dealer organization.

Industrial Center Goes Further West

WASHINGTON, Sept. 19—Despite the growth of the automobile industry, centered chiefly around Detroit, from a 65,000 unit production in 1908 to 4,428,000 units produced in 1926, the geographical center of the manufacturing industries of the United States is now about 50 miles southeast of Chicago, according to a survey just announced by the geological bureau of the Department of Interior.

In 1908 the "manufacturing center" which is based on horsepower in all plants, was on the northern boundary of Indiana, about 110 miles east of Chicago. The movement in the past 18 years has been about 75 miles. The geographic center of the United States is in Owen County, southwestern Indiana, and is 641 miles from the "industrial center."

U.S. Electrical Equipment Hit by New French Tariff

PARIS, Sept. 11 (by mail)—Coincident with the Franco-German commercial treaty some changes have been made in the French tariff detrimental to American automotive industries. From this week, when the Franco-German tariff went into effect, certain American electrical equipment will be taxed on the general rate, which is an increase of 800 per cent of the previous rates. Even had the minimum rates been put into effect, they would have represented an increase of 100 per cent on the old tariff. Importers of American electrical equipment state that their goods have received a fatal blow. Automobile imports remain unchanged, but there appears to be a possibility of increases on automobile parts brought in for assembly. The Ford company states that it is awaiting the first shipment as a test case.

When Parliament adjourned without passing the new tariff, it appears that it gave the Tariff Commission power to make changes by decree, and it was not realized until the Franco-German treaty was published a few days ago that the commission had taken advantage of this to insert a "joker" in the form of an 800 per cent increase on certain electrical equipment. These increases are on goods which Germany does not export.

Belgian Sales Improve

WASHINGTON, Sept. 20—Automotive sales in Belgium are reported as slow but improving, with American cars comprising about one-third of the total sales.

U. S. Chamber Adopts Tax Change Program

Repeal of War Excise Taxes
and Cut in Corporation
Tax Are Features

WASHINGTON, Sept. 19—Elimination of the 3 per cent excise tax on passenger cars, a cut to 10 per cent on corporation taxes and a reduction of the income taxes between the \$10,000 and the \$50,000 brackets, entailing a total tax reduction of from \$400,000,000 to \$500,000,000, is advocated as a congressional program at the coming December session of Congress by Senator Claude A. Swanson of Virginia.

He charges that the Treasury Department is misleading the country as to the treasury surplus and declares that there is no excuse or justification for the continuance of the nuisance and war emergency taxes which from their inception in 1918 up to Jan. 1, 1927, has cost the automobile industry a total of \$1,039,071,746.

Simultaneously with Senator Swanson's announcement of the Democrat idea of a tax program, the Chamber of Commerce of the United States, through its president, Lewis E. Pierson, also announces its tax program, which among other things, calls for the abolition of the war excise taxes on automobiles and nuisance taxes.

The chamber declares that "the interest in tax revision exceeds that on any other subject to come before the approaching Congress." This statement, he says, is based on actual inquiries and correspondence between the U. S. Chamber and members.

As a result of the chamber's taxation committee's recommendations, the following has been adopted as its definite tax program:

(1) Reduction of the corporation income tax; (2) repeal of the federal estate tax; (3) repeal of the war excise taxes; (4) simplification of internal revenue administration; (5) revision of provisions of the statute affecting the income accruing from installment selling; (6) establishment and maintenance of a reasonable balance between federal revenues and expenditures, and (7) ample facilities for a thorough-going study of all phases of taxation.

H. H. Rice, assistant to the president of General Motors Corp., and chairman of the National Automobile Chamber of Commerce taxation committee, represents the automobile industry on the chamber's tax committee.

Lewis-Shepard Opens Branch

BOSTON, Sept. 17—The Lewis-Shepard Co. has established a branch factory at West Bend, Wis., for the manufacture of its 4-way arc-welded steel frame platform to supply the western territory.

High Pressure Tires Show Inventory Drop

Stocks Are Cut Sharply in July By Sales Gain—Balloon Stocks High

NEW YORK, Sept. 19—With shipments exceeding production of pneumatic casings and inner tubes during July, there was a sharp curtailment of inventories which, however, were still high as compared with the levels of former years, according to the report of the Rubber Association of America, Inc.

Comparisons follow:

Pneumatic Casings—All Types			
	Inven- tory	Produc- tion	Ship- ments
1927, June	9,346,923	4,659,195	4,690,393
1927, July	8,494,900	3,815,624	4,480,193
1926, June	7,944,278	3,712,159	4,752,943
Inner Tubes—All Types			
1927, June	13,393,897	4,729,830	5,124,426
1927, July	12,003,664	3,963,737	5,302,546
1926, June	12,949,112	4,296,683	6,426,732
Balloon Casings—All Types			
1927, June	4,467,148	2,744,363	2,374,345
1927, July	4,465,684	2,195,215	2,181,168
1926, June	3,246,844	1,918,251	2,037,276
Balloon Inner Tubes			
1927, June	6,256,281	2,794,164	2,328,152
1927, July	6,139,588	1,931,454	2,161,532
1926, June	4,686,819	1,869,089	2,115,751
High Pressure Cord Casings			
1927, June	4,407,054	1,884,149	2,202,930
1927, July	3,694,710	1,600,389	2,146,846
1926, June	3,803,823	1,704,050	2,407,726
High Pressure Inner Tubes			
1927, June	7,137,616	1,935,666	2,796,094
1927, July	5,864,076	2,032,283	3,141,014
1926, June	7,143,811	3,543,903	4,862,692

AC Plans New Products to Augment Present Line

FLINT, Sept. 19—With 11 products now in active manufacture, AC Spark Plug Co. is planning the addition of other lines and by next February the production of all instruments and accessories will be 50,000 daily according to Albert Champion, president. The new factory buildings which are now being occupied will provide space for expanding operations.

The products now manufactured are spark plugs, speedometers, air cleaners, oil filters, gasoline strainers, thermometers, oil gages, ammeters, panels for automobiles and motor boats, tachometers, fuel pressure systems.

A new factory building now under way in France will take the place of the one previously used, and additions have been made recently to the Birmingham, England, plant.

White to Show Dairy Trucks

CLEVELAND, Sept. 19—A complete line of trucks for the dairy and ice cream industries will be exhibited by the White Co., at the annual convention of the Dairy & Ice Cream Machinery & Supplies Association here Oct. 24 to 29.

Dutch Rubber Trees Yield 353% Profit

WASHINGTON, Sept. 19—A gross profit of 353 per cent was made by the government-owned rubber plantations in the Dutch East Indies, the major portion of which comes from American automobile and tire manufacturers, according to report on the rubber industry from the American consul at Java.

The figures show that the automobile industry, using 84 per cent of the entire rubber output, paid an average of .456 cents per pound. The average 1926 cost of production was .09849 cents per pound, thus leaving the gross profit of .348 cents per pound, or 353 per cent.

Bendix to Organize Company in England

CHICAGO, Sept. 19—Bendix Brake Co. contemplates the immediate organization of an affiliated British company for the manufacture, distribution, and servicing of Bendix four-wheel brakes in Great Britain. In this connection the services of Herbert Clark have been secured.

Mr. Clark, who has very successfully engineered the introduction into Great Britain of other leading American automotive products, will be associated in the management of the British Bendix organization with the well known French Automotive Engineer, M. Henri Perrot, who has been connected with the development of four-wheel brakes throughout the world for the past 20 years. For some years M. Perrot has been prominent in the management of the foreign interests of Bendix Brake Co.

Watson Adds Distribution

PHILADELPHIA, Sept. 19—John Warren Watson Co. reports the addition of 92 points of distribution for Watson Stabilizers in August. These include five territorial distributors, 29 dealers and 58 service dealers. The appointments were made in 24 states. The announcement of the Type AA Stabilizer for cars of short wheelbase is expected by the company to increase further the demand for the Watson franchise.

Complete Building Program

RACINE, Sept. 17—The Belle City Malleable Iron Co. of Racine, Wis., supplying several large interests with automotive and agricultural castings, has completed a four-year plant replacement program involving an investment of close to \$1,000,000 and increasing the capacity 100 per cent to approximately 20,000 tons a year.

Accessory Exports Show \$647,964 Gain

Total for Six Months Rises to \$4,389,909—Canada Leading Market

WASHINGTON, Sept. 19—Exports of automobile accessories from the United States during the first six months of this year totaled \$4,389,909, according to revised figures announced by the automotive division of the Department of Commerce. The 1927 exports represented an increase of \$647,964 over the exports the first six months of last year.

The leading markets for accessories this year were as follows: Canada, \$1,547,798; Australia, \$408,580; Argentina, \$211,984; Brazil, \$203,859, and Germany, \$136,000.

Parts Exports Gain \$7,000,000

WASHINGTON, Sept. 19—A total of \$22,614,200 worth of automobile parts for replacement and repair purposes, was exported from the United States the first six months of this year, according to revised figures of the U. S. Department of Commerce. Similar exports the first six months of last year totaled \$15,895,007. Canada was the leading market, taking \$2,570,690. Other markets in order named were: Australia, \$1,800,034; United Kingdom, \$1,788,558; Argentina, \$1,537,893, and Japan, \$1,408,541.

Shop Equipment Exports Gain

WASHINGTON, Sept. 17—The sale abroad of American-made automobile service appliances, the first six months of this year, broke all previous records, the automotive division of the Department of Commerce announces. Total sales were \$4,230,442, compared with \$3,560,314 sold first six months of last year which was the largest year on record.

The United Kingdom took approximately half of the service appliances, its imports being \$2,062,913. Brazil, taking \$304,000 ranked second and Canada, taking \$284,000, ranked third on the list.

Canadian Exports Show 29% Decrease in July

WASHINGTON, Sept. 21—Exports of motor vehicles from Canada during July declined 29 per cent as compared with those for June, 1927, and 21.9 per cent as against July, 1926, according to revised figures announced by the automotive division, U. S. Department of Commerce. Shipments of passenger cars showed the greater decline decreasing 1030 in number, while the number of trucks exported was 299 less than in June. Production also declined, the number of passenger cars manufactured being 48 per cent less than in June, 1927, and 34 per cent less than in July, 1926.

Men of the Industry and What They Are Doing

210 Descendants Attend Reunion of Studebakers

The reunion of the Studebaker family in America held at South Bend in the administration building of the Studebaker Corp. of America, drew 210 descendants and kinfolk of the five brothers who founded the Studebaker business. More than 50 of those attending bore the name Studebaker.

The visitors came from all parts of the United States, nearly every state being represented, and the majority came in automobiles of which most were of Studebaker extraction.

Mrs. C. A. Carlisle, daughter of the late Clem Studebaker, one of the original five brothers, was hostess, and with A. R. Erskine, president of the corporation, greeted the members of the family. Addresses were made by C. R. Montgomery, mayor of South Bend; Joseph Studebaker of Flora, Ind., Mr. Erskine and members of the family. The blessing was asked by Mrs. Emma Bowman, North Manchester, Ind., the oldest living child of the late Henry Studebaker.

Westinghouse Makes Changes

J. R. Bartholomew has been appointed manager of manufacturer's sales of the automotive brake division of the Westinghouse Air Brake Co., with headquarters in the General Motors Building, Detroit. He was formerly in the New York office of the company. H. D. Hukill, formerly sales engineer, has been appointed manager of the automotive brake division with headquarters at the general office, Wilmerding, Pa.

Goldman Visits South America

George Goldman, manager of the Kansas City branch of North East Service, Inc., has left on a 10 months' trip to South America and the West Indies, where he will call on North East service stations and establish new stations wherever necessary. He will call also on distributors of Northeast horns, sales of which have been large in this territory.

Bosnian Named Superintendent

Luther H. Bosnian has been appointed superintendent of the Park St. Plant of the Chain Belt Co., Milwaukee. He is a graduate of the Sheffield Scientific School, Yale University, and has been connected with Chain Belt for the past eight years. Previous to this he was with Westinghouse.

Woods Rejoins Ford

D. C. Woods, for sixteen years connected in various capacities with the automotive trade in the Southwest, has resigned as district manager for Peerless Motor Car Corp. and has rejoined Ford Motor Co.

Graham is Appointed Assistant to Willys



George M. Graham

George M. Graham has been appointed assistant to John N. Willys, president of Willys-Overland, Inc. He started with Willys-Overland in the early days and subsequently became vice-president of Pierce-Arrow and later served in the same capacity with Chandler. Serious illness in Mr. Graham's family necessitated his resigning from Chandler that he might accompany his family abroad.

During the war Mr. Graham represented the automotive industry in Washington and has since been its spokesman on many important occasions when questions of taxes, highway development, and traffic safety were at issue.

He is a director of the National Automobile Chamber of Commerce.

Werner Back from Europe

F. J. Werner, chief body engineer of the Kissel Motor Car Co., has returned from a three months' visit to Europe, where he visited the leading automobile builders. Mr. Werner is well known in Europe, as before coming with the Kissel company 20 years ago, he was considered a leading coach designer in both Germany and France.

Rigby Visits European Shows

M. F. Rigby, advertising manager of the Studebaker Corp. of America, sailed for Europe this week to attend the International Motor Show, Paris, and the London Olympia. Following the shows, Mr. Rigby will visit Studebaker-Erskine distributors in the British Isles, France, Holland, Belgium and Germany, and will make intensive study of automobile advertising in Europe. He will return to the United States in November.

Warner Forms Company to Produce New Brake

Warner Electric Brake Co. has been formed with \$1,000,000 authorized capital stock by A. P. Warner and associates, of Beloit, Wis., to undertake the further development and commercial production of a new type of mechanical brake for motor cars, industrial and other uses. Mr. Warner is a noted inventor in the automotive field, having been a pioneer in designing speed-measuring devices and other metering instruments. He has been at work on the new electric brake for several years, meanwhile also manufacturing trailers and other automotive products in his factory at Beloit, where the new company will maintain its headquarters for the present. The corporation is formed under the laws of Illinois and the capitalization consists of 20,000 shares of 7 per cent preferred stock of \$50 par value and 40,000 shares of no-par common.

Leahy Indian Treasurer

John W. Leahy, assistant treasurer of the Indian Motorcycle Co., for four years, has been elected treasurer to fill the post made vacant by the resignation of Parmly Hanford. Edward W. Stack has resigned the post of assistant advertising manager, after six years connection with the concern.

White Article Translated

Walter C. White, president of the White Co., is now an advisor on motor transportation for Brazil. His recent article, How the Modern City Traffic Problem is Affecting Business, has been translated into Portuguese, published in pamphlet form and distributed throughout that country.

Whitlock Goes to Africa

H. H. Whitlock, formerly district sales manager for the Ford Motor Co. of Canada, Ltd., has been appointed factory representative for the company in the Gold Coast, Nigeria, the Cameroons, Togoland, Gambia and Sierra Leone. He will take up his duties immediately upon his arrival at Accra in the near future.

Reo Export Men on Trips

M. D. Cooper, of the Reo Motor Car Co. export division, has left for South America, where he will visit the various republics for his company. John Blanc, also of the export division, leaves soon for Panama. He will travel the West Indies and Central America.

Moriarty on Hupp Board

John J. Moriarty of New York was elected a director of Hupp Motor Car Corp. at the annual meeting. Other directors were reelected.

Nash Motors Plans \$1,200,000 Expansion

Standard Six Plant and Body
Factories to Have 450
Daily Capacity

CHICAGO, Sept. 19—A \$1,200,000 expansion program involving expenditures for buildings and additional equipment at three of the company's plants was announced today by C. W. Nash, president of the Nash Motors Co. Mr. Nash said the demand for the new series of cars is responsible for the expansion.

"We have found it necessary," said Mr. Nash, "to provide for greater production, particularly at our Racine plant, and this involves a corresponding increase in bodies, so the Seaman Body plant at Milwaukee and the Seaman-Dunning Corp. plant at Pine Bluff, Ark., also will figure in the expansion.

"At no time since July 1 has Nash Motors Co. been able to fill orders for the standard six line. The program at Racine calls for two new buildings and a large amount of additional equipment and for expansion in the present buildings at a total cost of about \$500,000.

"The Seaman Body plant in Milwaukee will be increased by a new five story building, 193 ft. by 100 ft. which together with equipment will cost approximately \$450,000. The Pine Bluff plant which manufactures wood parts will be increased by one-third its present size at a cost of \$350,000.

"With these factory extensions the Racine plant will have a capacity of from 400 to 450 cars a day. This together with the manufacturing facilities of the Kenosha and Milwaukee plants is expected to place the company in a position to take care of the increasing demand during the 1928 season."

Ford Buys Acid Washer

DETROIT, Sept. 19—Ford Motor Co. has ordered from the Semet-Solvay Engineering Corp. of New York, an acid washer for the light oil and benzol recovery plant at Dearborn. This apparatus will be part of the by-product coke oven plant operated by the Ford company. The washer will have a capacity of approximately 3000 gal. Its function will be to wash out impurities from the crude benzol liquor by means of a sulphuric acid bath. The process separates such substances as phenol and sulphur while preserving for further refinement the elements desirable for making high quality automobile fuel.

Buick Sets Delivery Record

FLINT, Sept. 17—Buick deliveries for July and August numbered 58,800 units compared with 44,811 in July and August, last year, an increase of 13,989. The new figure, according to C. W. Churchill, general sales manager, shatters all records in Buick history.

Paris Sees Chassis Cast in One Piece

WASHINGTON, Sept. 21—An automobile chassis cast in one piece was shown at a recent meeting of the Academy of Science in Paris, the U. S. Department of Commerce's automotive division has been informed. The chassis is made of "alpax," an alloy of aluminum and silicon, combined by a sodium salt or sodium. It has a density of 2.6 and a breaking point of 20 kilograms, with 3 to 5 per cent stretching. The chassis is without soldering or riveting and weighs but 160 kilograms, reducing the ultimate weight of the car nearly 50 per cent.

Newton Die Casting Combines 2 Companies

NEW YORK, Sept. 19—Newton Die Casting Corp. has been formed to take over the assets and business of the die casting division of the National Lead Co. and of Marf Machine & Die Casting Co., Brooklyn. For the present the plants of the two companies will continue to operate as separate units. When the physical merger is completed the Newton Die Casting Co. will be housed in a new plant.

The die casting division of the National Lead Co. started in 1910 and Marf company entered the die casting industry in 1916.

No new financing is anticipated in connection with the merger and the present personnel of both units will be retained. W. G. Newton, president of the Marf company and responsible for its success, will be president and general manager of the corporation.

To Make Varnish Abroad

CLEVELAND, Sept. 19—European automobiles will be made glossy with Cleveland varnish, according to Dr. F. W. Beegle and E. T. Tripp, who have sailed for Europe to complete arrangements for establishing a branch plant of the Cleveland Varnish Co., in England. German and French market possibilities will be studied. Dr. Beegle will study color arrangements and finishes used by European automobile manufacturers. Mr. Tripp is president of the Cleveland Varnish Co., and John Lucas & Co., Philadelphia.

Czech Company Changes Name

WASHINGTON, Sept. 20—The Nesselzdorfer Carriage Works in Czechoslovakia, manufacturers of Tatra automobiles, has changed its name to Tatra Works, Automobile & Carriage Building Co., the automotive division, U. S. Department of Commerce, has announced. The net profits of the company during 1926 were \$65,000.

Labor Report Says Ford Activity Near

Large Increase in Employment By Sept. 30 Expected
—Racine Plants Busy

WASHINGTON, Sept. 20—Employment in automobile plants throughout the country continued on a curtailed basis during August and a large number of automobile workers are temporarily idle, according to the monthly industrial employment bulletin issued this week by the U. S. Department of Labor. A "decided increase" is looked for in employment in the automobile industry before the close of September, however, the department stated.

Industrial employment in a number of leading industries was at a higher level than during the preceding month, with further substantial increases expected in September.

In Michigan the prevailing dullness in the automobile industry has had a very bad effect on the general employment situation, the department said.

Labor conditions in the leading automobile centers follow:

Detroit—A large motor company that normally employs about 125,000 men is employing about 60,000 at present. This number will be increased in September when work on a new model will be started.

Grand Rapids—Automobile plants are working with only 25 per cent of their force.

Flint—Automobile factories are working part time in a number of departments and at present a surplus of automobile workers and production men exists.

Kalamazoo—An automobile body plant and a cab plant are operating on part-time schedules.

Lansing—Surplus of automobile factory workers and it is impossible for the temporarily released labor to secure employment in other lines.

Racine—Automobile plants are operating overtime, while farm implement factories are on part-time.

Tire Fabric Mills Merge

ATLANTA, Sept. 20—At a recent meeting of the stockholders of the Western Reserve Cotton Mills Co. of Georgia, operating a large plant at Quitman, Ga., for the manufacture of cord tire fabric, details were completed for the transferring of the Quitman mills and properties to the Morgan Cotton Mills, Inc., Laurel Hill, N. C., and the two companies will hereafter operate as one concern though maintaining both plants.

Paasche Locates Branch

CHICAGO, Sept. 20—Paasche Airbrush Co. has opened a sales and service branch at Cincinnati, under the direction of H. H. Evers. This branch will be known as the Paasche Airbrush Co. of Cincinnati.

Australians Study Body Building Here

Large Manufacturer Visits
Studebaker Plants to Pre-
pare for Higher Production

SOUTH BEND, Sept. 19—Frank Waddington, president of Smith Waddington, Ltd., automobile body builders, Sydney, Australia, and his son, Frank Waddington, production engineer, are in South Bend inspecting the plants of the Studebaker Corp. of America. During their stay, Mr. Waddington and his son will study production methods in body building which can be successfully adopted by their concern.

Smith & Waddington, Ltd., formerly was a custom body concern, but the demand for Australian-built bodies has increased to such an extent that the concern recently was placed on a production basis. The company now occupies 13 different buildings in Sydney, and a modern seven-story plant, costing approximately \$1,000,000 is nearing completion. With present facilities, Smith & Waddington produces 330 bodies a week. As soon as the new plant is available, production of 750 bodies a week will be possible. The firm, which is capitalized at \$2,500,000, will produce bodies for both Studebaker and Erskine six models sold in Australia as soon as it is placed on a full production basis.

"The automobile business has a brilliant future in my country," he added, "because of the country's rapidly increasing population and growing wealth. The development of Australia has been phenomenal, and especially in the last seven years.

Roads Improved Rapidly

"While the population of the country is not quite 7,000,000, nevertheless the number of automobiles per capita is almost as great as it is in the United States. The roads are being improved rapidly, with the aid of both state and federal governments, which is an important factor in the automobile business. In Sydney alone there are from 600 to 700 new cars sold each week. Studebaker enjoys a good proportion of this business, due in a measure to George E. Willis, managing director of the Studebaker Corp. of Australia, Ltd., Sydney, who formerly was manager of export sales for Studebaker here in South Bend.

"Due to the federal government's policy of fostering Australian industries, the duty on imported automobile bodies has aided in the expansion of the body building business," Mr. Waddington pointed out. "A duty of £60, or approximately \$300, is required on all bodies imported, provided the value of the body does not exceed £120, or approximately \$600. If the value of the body is placed at more than \$600,

Australia Imports Show 38% Increase

WASHINGTON, Sept. 17—United States automobile exports to Australia during the fiscal year ended June 30 totaled 76,000 automobiles and trucks, which, with parts and accessories, were valued at \$54,380,000, an increase of 38 per cent in number and 25 per cent in value, the U. S. Department of Commerce has announced. This continued Australia in first rank among foreign markets for American automotive products. Shipments of automobile products to New Zealand, however, decreased 12.7 per cent.

then an ad valorem duty of 50 per cent of the value of the body is exacted.

"An idea of the size of the Australian motor car market is readily gained from the fact that the only other large body building concern on a production basis built 42,000 bodies last year and was still unable to supply the demand. And of course a certain percentage of cars sold were imported complete."

Car Exports to Europe Equal Full 1926 Total

PARIS, Sept. 10 (by mail)—American automobile exports to Europe during the first six months of his year equalled the total for the whole of 1926, according to figures just compiled here. Last year the United States sent 47,116 automobiles, having a value of \$40,216,018 to all European countries. Up to the end of June of this year the number of automobiles was 47,145, having a value of \$37,837,094.

Eleven countries showed larger purchases during the first six months of 1927 than during the 12 months of 1926. They are Belgium, Czechoslovakia, Denmark, Finland, Greece, Hungary, Norway, Poland, Roumania, Switzerland and European Turkey.

Brazilian Outlook Poor

WASHINGTON, Sept. 17—Gains in the sale of light and medium weight automobiles in Brazil, at the expense of the heavy car market, are reported by the automotive division, U. S. Bureau of Foreign and Domestic Commerce. The outlook for the next few months is not encouraging. Sales of taxicabs are slow due to continued development of bus lines.

India Imports 80% American

WASHINGTON, Sept. 17—July automotive imports into India totaled 1199 cars and 694 trucks, of which 80 per cent are either of American make or made by branch manufacturers in Canada of American makers.

Massachusetts Starts Drive on Accidents

Official Inspection of Safety
Factors of All Vehicles
Part of Campaign

CHICAGO, Sept. 19—Inaugurated by a proclamation issued Sept. 6 by Governor Alvan T. Fuller and backed by automobile and civic organizations throughout the state, the Massachusetts "Be-A-Life Saver" campaign is in full swing, it was announced today by Percy E. Chamberlin of the Greater Market Development of the Automotive Equipment Association.

The inspection period, as proclaimed by Governor Fuller is from Sept. 12 to 24 inclusive. During this time every motor vehicle in the state is expected to drive into one of the official stations for an inspection of the safety factors of the vehicle—horn, lights, brakes and steering mechanism.

The inspections will be made free of charge by 1450 stations appointed by Registrar of Motor Vehicles Frank A. Goodwin. Every car and truck in good condition, or which has been made so, will be given an official sticker. After Sept. 24 any car or truck owner who does not display a sticker will be subject to arrest, if any of these safety factors are found defective.

The plan in use in Massachusetts is identical with that recently used in New York State. It was originated by Greater Market Development of the Automotive Equipment Association, which is conducting a drive to get every state to adopt the idea of periodical inspection of all motor vehicles. Massachusetts is the second state to institute the campaign. It is expected that at least 750,000 motor vehicles will be inspected during the campaign.

Will Make Bassick Units

CINCINNATI, Sept. 17—Cincinnati Ball Crank Co. has completed negotiations with the Bassick Mfg. Co. whereby it will manufacture all high pressure guns and other pressure lubrication units under patents of the Bassick company. In making its announcement, the Cincinnati company says it is the only company at the present time having this license arrangement. The Balcrank type D high pressure lubricator and the Balcrank line of high pressure nipples will be manufactured under this license in addition to Balcrank patents and patents pending on these products.

Joins Standards Committee

NEW YORK, Sept. 17—The American Gear Manufacturers Association and the Portland Cement Association have become members of the American Engineering Standards Committee with representation on the main and executive committees. Both have been very active in standardization activities.

Pacific Coast Has 14 Plane Factories

Standard Oil Survey Shows Strong Manufacturing and Operating Companies

SAN FRANCISCO, Sept. 19—The growth of commercial aviation on the Pacific Coast, and the development of airplane construction, is somewhat surprisingly summarized in the report of a survey just made by the Standard Oil Co. of California. According to this report, there are eight established and successful airplane factories on the coast, with four equally well established organizations handling mail and passengers up and down this shore of the Pacific and eastward.

In addition to the eight large companies there are at least six others not so well established, but each of which has built two or three airplanes now flying either commercially or privately on the coast. There are also more than 50 commercial and "stunt" aviators, flying their own planes in California, Oregon and Washington, in addition to the companies operating air transportation in regular service.

Starting at the south, the B. F. Mahoney Aircraft Corp., formerly the Ryan Aircraft Co. of San Diego, has just completed sale and delivery of seven planes to the Pacific Air Transport Co. and now has a capacity production of a plane every three days.

T. Claude Ryan, founder of the above company, sold out his interests to B. F. Mahoney, his partner, to devote his time to the distribution and manufacture of Ryan-Siemens radial, air-cooled, airplane engines, to which he has obtained exclusive American rights. These engines are made in 75, 100 and 125-hp. sizes, and are particularly adapted to small planes.

Ryan Distributing Engine

Mr. Ryan has opened offices in San Diego, where land has been purchased for a manufacturing plant. Five of the engines have been sold by this company since it was formed the first of the year.

In Seattle, is the Boeing Airplane Co. with a record of more than 1000 planes built and delivered. This corporation is credited with having produced more aircraft since the World War than any other American manufacturer, among its output having been the Navy plane PB-1, one of the largest ever built. The Boeing company now employs 730 men.

At Santa Monica, the Douglass Airplane Co. has turned out 196 planes in the past year and delivered them, largely to points in the East and Middle West, without an accident or a single forced landing. These planes were designed by Donald Douglass, who designed and built the round-the-world planes. Sales of Douglass airplanes

Use Trucks Feeders Boat Owners Told

BALTIMORE, Sept. 17—Suggestion that the shipping interests should investigate the possibility of establishing motor truck lines from landings along rivers, bays and other waterways, back into the interior of the surrounding country was made here this week by Maj. Gen. Edgar Jadwin, chief of engineers in the War Department, speaking before the annual convention of the Atlantic Deeper Waterways Association.

and parts during 1926 totaled \$2,490,000. The company now employs 650 men, with a monthly payroll of \$97,000.

In addition to these there are other airplane construction companies in successful operation, though on a smaller production basis. Among them are the International Aircraft Co. of Los Angeles; the Prudden Metal Aircraft Corp., San Diego; the Rocheville Aircraft Co., San Diego; and the Vance Breese Airplane Co., San Francisco.

Carry Mail and Passengers

Many of the planes turned out by these corporations are in the air mail service, others are carrying both mail and passengers, some passengers only, and still others are in private service, a number of physicians and attorneys having purchased planes which they fly themselves. In the mail service on the Pacific Coast are the Varney Airplane Co., the Pacific Air Transport, the Western Air Express and the Boeing Air Transport Co., a subsidiary of the Boeing Airplane Co. All of these carry mail, and all but the Varney company also take passengers. Increase in passenger traffic offerings has impelled construction of a number of cabin-type planes on the coast.

Willard Opens New Branch

OAKLAND, CAL., Sept. 19—The Willard Storage Battery Co. has just completed at a cost of \$70,000 a new factory branch, stores and super-service station between three of the main traffic arteries of this city. The plant, which covers 14,000 sq. ft., can give battery service to 50 cars at one time, in addition to a large machine and battery repair shop. B. H. Winks, Oakland manager, and N. G. Wolf, district manager for the central section of California, will supervise the new station.

Transfers Diesel Operations

NEW YORK, Sept. 19—Worthington Pump & Machinery Corp. has transferred certain types of Diesel engine construction from the recently closed Blake & Knowles plant at Cambridge to the newly enlarged Snow works in Buffalo as a step in its program of concentrating facilities.

Southern Pacific R.R. Opens 8 Bus Routes

Lines Will Be Supplementary to Rail Service With Inter- changeable Tickets

PORTLAND, ORE., Sept. 19—The most elaborate system of motor transportation in the Pacific Northwest was inaugurated today by the Southern Pacific Co. Eight lines will be placed in operation simultaneously with schedule frequencies ranging from one round trip a day to seven. The buses are to be the last word in luxurious highway travel.

The new service will be supplementary to the Southern Pacific's rail service in Western Oregon. Railway tickets will be accepted on the buses for any portion of a trip. The new service will extend from Portland to Salem, Eugene, Roseburg and Ashland; from Portland to McMinnville by way of Hillsboro; from Portland to Corvallis by way of Newberg. Interurban service from Portland to Oswego Lake points also are provided for. All of which practically will parallel or run on the same routes as those of the Oregon Motor Stages, Inc.

It is the Southern Pacific's first venture in the field of highway transportation. The Southern Pacific Motor Transport Co. is the subsidiary which will operate the lines. This company has already taken over the operation of the street car lines in Salem and Eugene.

The selection of Oregon as the initial field of operations of this character and the startling scale upon which it is being launched has taken transportation men off their guard. It is taken as indicating that Southern Pacific officials are confident that Western Oregon is on the verge of unprecedented development.

Salem will be the operating headquarters of the motor bus system, according to announcement of T. B. Wilson of San Francisco, and T. L. Billingsley, who has been superintendent of the Southern Pacific's street car lines in Salem and Eugene for the last 15 years, will be superintendent in Oregon.

Some 30 buses of the parlor type are now enroute to Oregon, to be placed in use on the various Oregon routes, and it is expected that these new routes of travel will be extensively advertised in the east by the Southern Pacific company.

Dunlop Adds Distribution

BUFFALO, Sept. 19—Dunlop Tire & Rubber Co. has developed 77 additional wholesale distribution points in the past 45 days to provide facilities following the introduction of many new sizes and types of balloons and other tires. Several more warehouses will be established in the coming 60 days.

Steel Buying Holds to Routine Levels

Expected Upturn in September Fails to Materialize—
See Revival in Late Year

NEW YORK, Sept. 22—While there is in evidence in the steel market a disposition to underrate the extent of automotive demand which continues fair, it is certain that the middle of September has passed without bringing the marked upturn in automotive purchases that many steel rollers had confidently expected. In 1922 and in 1925, October showed both gains in automotive as well as steel production and there are those who pin their expectations of moderately improved demand on the possibility of a recurrence of these conditions. The more general belief in the steel market now, however, is that not much of any sort of a change can be looked for until shortly before the close of the year when operating schedules in the automotive industries for the first quarter of 1928 may be expected to assume more definite shape and some advice covering of steel requirements may get under way. This expectation, of course, does not take into consideration the aversion of so many to commitments immediately before inventory and show time.

With steel ingots being converted into finished automotive units within a few weeks, the fortunes of the steel industry are much more intimately tied up with the ups and downs of motor car sales than ever before, and even though sales of the new Ford model may later in the year swell motor car sales to some extent, it is hardly thought that much of an increase in rolled steel demand can be looked for from that course over the remainder of this year.

Seesawing of the demand for sheets and strip steel from week to week has relatively little effect on the market. Adjustment of mill operations to the from week-to-week demand appears to be easily accomplished. In sheets, independents and smaller rollers have about three-fifths of their capacity engaged while the chief interest is reported to fare somewhat better, operating at about 70 per cent of capacity. The market is naturally easy, but by no means weak.

Pig Iron—Blast furnace interests are striving might and main to obtain a better price for their output and in some markets advances have been chalked up, without, however, having so far stood the test of sales in a representative way. Detroit and Cleveland automotive foundries appear to be well supplied.

Aluminum—Heavy arrivals of aluminum from the Canadian subsidiary of the sole domestic producer are believed to be intended for conversion into fabricated products for export. Bonded warehouse stocks continue large. Automotive consumers buy in moderate tonnages in hand-to-mouth fashion, there being no need for them to

carry reserve stocks in so well supplied a market. The Treasury Department has ruled that silicon-aluminum alloys, if in chief value of aluminum, must pay duty on the basis of the duty on that metal.

Copper—Following brisk buying by domestic consumers at 13¼ and 13½ cents, the market turned slightly more quiet. A better demand for brass ingots is reported from Detroit.

Tin—The market turned rather unsettled late last week, and consumers are holding off, although prices are rather attractive.

Lead—Storage battery manufacturers figured prominently as buyers lately. The market is firm.

Zinc—While demand is not very large, producers are supporting the market by not pressing metal for sale.

Hardwood Purchasing Reverts to Small Lots

ATLANTA, Sept. 20—Though hardwood sales to the automotive manufacturers were unusually active the first 10 days of this month, business since then has been showing a declining tendency due to the fact that comparatively few advance orders are being booked. It had been thought that advance buying would continue active all through the present month as manufacturers placed orders for their last quarter needs.

In quantity, there are a larger number of orders being booked than usual, but most of them are of comparatively small size and apparently for current requirements. The total volume is 10 to 15 per cent less than during the latter part of August. Inquiry, however, is active, and as prices are still showing a declining tendency it is the opinion of the lumber trades here that sales will pick up again toward the end of the month.

Primary takings are of the thicker dimensions of white ash in the best grade, with a fair call reported for the second best grade of ash and for the best grades of maple and elm.

Southeast Buys Tractors

ATLANTA, Sept. 20—September will prove one of the largest months of the past two or three years in the sale of tractors and power farming equipment in the Southeast, in the opinion of distributors in Atlanta.

High prices prevailing for most of the important Southern crops, especially cotton, accounts for the increase in sales the last three or four weeks, business in the first half of September being considerably larger than during the same period last year. The increase does not appear to be confined to any given section, but has been general over the whole Southeast.

Costa Rica Changes Duty

WASHINGTON, Sept. 17—A new Costa Rican decree assesses the rate of duty on passenger automobiles on the net instead of gross weight, as formerly, the automotive division, U. S. Bureau of Foreign and Domestic Commerce, announced.

Financial Notes

Borg & Beck Co. reports August net profit of \$86,331 after taxes and charges, compared with \$73,001 in August, 1926. Net profit for first eight months of 1927 totaled \$692,049 against \$578,049 in the same period of previous year.

Mullins Body Corp. balance sheet as of July 31, 1927, shows current assets of \$1,681,601 and current liabilities of \$243,746 against \$1,628,892 and \$306,527, respectively, on Dec. 31, 1926. Cash on July 31 amounted to \$476,667 comparing with \$120,022 at the end of 1926.

Redemption of \$1,000,000 par value of the 8 per cent preferred stock of the Spicer Mfg. Co. will be effected on Oct. 1, it was announced by the company yesterday. The redemption price will be 110. As of Dec. 31, 1926, there was \$2,800,000 of this stock outstanding.

Moto-Meter Retires Notes Sees Better Last Quarter

NEW YORK, Sept. 17—The Moto-Meter Co., Inc., has retired from earnings \$250,000 of 6 per cent notes given in partial payment for its subsidiary, National Gauge & Equipment Co. After completing the retirement, Moto-Meter and subsidiaries have between \$900,000 and \$1,000,000 cash on hand.

The current quarter has slowed up as compared with the two previous quarters, because of a general slowing down in the automobile industry; nevertheless Moto-Meter, Inc., will show nine months dividend at rate of \$3.60 annually, earned for the first three-quarters of the year on its A stock, according to George H. Townsend, president.

"Prospects are for improved automotive accessory business in the final quarter of the year, as the expected announcement of several new car models will permit production schedules in the automobile industry to be made up," he said.

New Zealand Sales 18,024

WASHINGTON, Sept. 17—A total of 18,024 motor cars were sold in New Zealand during the year 1926, according to a report to the automotive division, U. S. Bureau of Foreign and Domestic Commerce. Of this number 86 per cent were imported from the United States and Canada. Owing to depressed business conditions, a decline in automobile sales for 1927 is expected.

Seeks Marine Engine

WASHINGTON, Sept. 17—One of the largest Swedish companies selling American automobiles and accessories wishes to secure a contract for American marine engines of 4-cylinder and 20 to 35 hp. types, the automotive division of the U. S. Bureau of Foreign and Domestic Commerce has been informed.

Financing Commands Credit, Says Hanch

Time Payments on Cars Stabilized and Ample Capital is Available

NEW YORK, Sept. 20—C. C. Hanch, general manager of the National Association of Finance Companies, and formerly a director of the National Automobile Chamber of Commerce, spoke today at the Hotel Astor before the Radio Manufacturers Association on the cross licensing agreement of the automobile manufacturers. After describing the inception of the plan and the manner of its working, Mr. Hanch answered a number of questions from members of the group, which is in favor of a similar practice in the radio industry.

Mr. Hanch had previously said that most of the difficulties that existed a year ago in automobile financing were satisfactorily adjusted. "Automobile financing," added Mr. Hanch, "is now well stabilized and is in a position to command ample credit and capital. With the exception of the Pacific Coast section, time payments for motor cars are now virtually standardized on a reasonable first payment with twelve monthly instalments thereafter. This method prevails in about 95 per cent of business east of the Rocky Mountains. West of the Rockies, automobile buyers on time payments are usually allowed 18 monthly instalments.

G.M. Fall Showing Oct. 1

DETROIT, Sept. 25—General Motors will open its fall showing in the General Motors Building here, Oct. 1. At the same time dealers handling General Motors products within 50 miles of Detroit will cooperate by holding special showings and decorating their places of business. The display will be a complete representation of the entire General Motors automotive line.

Buick Dealers Visit Flint

FLINT, Sept. 20—A party of 125 dealers from the Memphis territory are in the city for two days as guests of the Buick Motor Co. Their party is the first of a series which the company will hold over a period covering the next nine weeks during which all the 3,800 Buick dealers will be brought into the factory.

August Rubber Averages 35.77

WASHINGTON, Sept. 21—August imports of crude rubber totaled 63,847,677 lb., valued at \$22,838,112, according to import figures announced by the Department of Commerce. The average unit price was 35.77 cents per pound. Of the total imports 85 per cent is used in the rubber and automobile tire industries.

Wisconsin Reports 12% Gain in August

MILWAUKEE, Sept. 17—Official figures just released show new car registrations in August for the entire state of Wisconsin numbered 8059, compared with 7211 in August, 1926, an increase of 12 per cent. This was accomplished in the face of another precipitous drop in Ford sales, compared with a year ago, when 2181 new Fords were sold, against only a few more than 500 this year. All other makes besides Fords sold in Wisconsin in August this year more than 7200 cars, against 5030 a year ago. The commercial car record is even more imposing. Sales of new trucks in Wisconsin during the past month numbered 712, a substantial increase over last year.

Lorenzo D. Brown Dies, Headed Goodrich Finance

AKRON, Sept. 21—Lorenzo D. Brown, 52, vice-president of the B. F. Goodrich Co., died suddenly Sunday near Buffalo, while en route to New York City. Since the death of Bertram G. Work, Goodrich president, last month in Switzerland, Mr. Brown had been mentioned prominently as the next head of the company.

Mr. Brown had been connected with Goodrich since 1917, when he was appointed treasurer. He became vice-president in charge of finance two years ago. Before joining the company he was vice-president of the First Trust & Savings Bank at Akron.

Born in Hornell, N. Y., Dec. 28, 1874, he came to Akron with his parents at the age of 11.

Mr. Brown had been a close personal friend of the late Mr. Work and had served last week as a pall bearer at his funeral. Death of his friend had depressed Mr. Brown, but he was thought in good health when he left here for New York on a business trip. His death was due to heart disease. Funeral services were held in Akron Sept. 20.

Stutz Wins at Charlotte

INDIANAPOLIS, Sept. 21—Safety Stutz Black Hawk speedsters finished first, second and third in the Charlotte 75-mile stock car race today. Tom Rooney's average was 94.24 miles per hour. The same cars finished one, two, three at Atlantic City, Labor day.

Auburn Changes Compression

AUBURN, IND., Sept. 21—A 6.2 to 1 compression ratio and 3.69 gear ratio has been made optional equipment at no extra cost on the Auburn 888 and is now in production.

Boston & Maine R.R. Adds Truck Feeders

Will Speed Services on L-C-L Lots and May Follow With Door Deliveries

BOSTON, Sept. 19—The Boston & Maine Railroad Co. has started a systematic survey of its system as regards terminals and freight movements, and is assigning motor trucks here and there to both speed service and try to recapture some of the business lost to commercial vehicle operators. There are 14 specialists now going over the system under the direction of J. W. Smith, the new assistant to President Hannaeur. These men will familiarize themselves with every inch of the trackage, terminals, wharves and general property.

President Hannaeur believes that the industries of New England are entitled to as speedy service as it is possible to give them, and where necessary to expedite movements, motor trucks will be used if found to be the solution. Between Ware and Worcester in Massachusetts the company has put into effect a new service for less than carload lots using two eight-ton trucks operating upon a daily schedule serving the stations along the Massachusetts Central division as far east as Rutland and then going on to Worcester. Station deliveries will be made but no direct door service, at least for the present. That may come later.

In Boston the railroad has put in effect its motor truck service between its Northern Artery terminals and stations along the line to Waltham, Woburn, Everett, Chelsea, Cambridge, Stoneham, Watertown, North Somerville, Malden and Winchester with direct tie-ins with through freight cars to and from important distributing centers. Within a few weeks the system will be extended to Melrose, Reading, Wakefield and other cities in the greater Boston area and elsewhere.

At Concord, N. H., a group of officials has just ended a stay of several days making a checkup on conditions in the territory radiating from there in all directions. Concord is a pivotal point on the way to Montreal, and also south and west.

Carborundum Buys Globar

MILWAUKEE, Sept. 17—Announcement is made that the Carborundum Co., Niagara Falls, N. Y., has acquired the controlling interest in the American Resistor Corp., of Milwaukee, manufacturing non-metallic electrical heating elements and resistors marketed under the trade name of "Globar." The Milwaukee factory, employing about 70 workers, will be moved to Niagara Falls about Jan. 1. The business will be continued under the name of The Globar Corp., which has been incorporated in New York state.

Glancy and Hoffman Address Ohio Trade

CLEVELAND, Sept. 17—The two outstanding chords running through the 1927 convention of the Ohio Council of the National Automobile Dealers Association were presented to the 500 Ohio dealers at the banquet closing the three-day meet.

"First, remember that 100 per cent service to the customer is going to be the big development for the coming years in the automotive industry. That will be the major selling point, instead of being able to say 'we have a car which can run 90 miles an hour.'

"Second, install an accounting system. A financial statement is the chart by which your business is navigated. A monthly financial statement in hands of all dealers would make business sail mighty smooth."

These developments were presented by A. R. Glancy, president of Oakland Motor Car Co.

Dealers unitedly acted favorably on a resolution proposing a campaign among Ohio automobile dealers for the systematic education of everyone concerned with servicing the automobile.

Dealer problems were discussed by Paul G. Hoffman, vice-president of the Studebaker Corp. of America.

Chandler Wins Chile Run

CLEVELAND, Sept. 17—A Chandler recently won the 220-mile South American race from Santiago to Panimavida, Chile, according to word received at the Chandler factory. The race was sponsored by the Santiago Automobile Club.

Coming Feature Issues of Chilton Class Jour- nal Publications

Oct. 1—Production and Factory Equipment Issue—Automotive Industries.

Nov. 10—Marketing Annual—Motor World Wholesale.

Meteorology Committee is Formed by Guggenheim

NEW YORK, Sept. 17—The Daniel Guggenheim Committee on Aeronautical Meteorology has been formed by the Daniel Guggenheim Fund for the Promotion of Aeronautics to coordinate research on meteorological problems bearing on aviation. Represented on the committee are the Guggenheim Fund, the Weather Bureau, the Army and Navy and the Department of Commerce.

It is proposed to stimulate cooperation between meteorological workers in all branches of public and private service.

Headquarters of the committee will be in charge of the Weather Bureau at Washington.

To Use Windsor Plan

SACRAMENTO, CAL., Sept. 19—Marking entrance into a new era of used car merchandising in Sacramento, officials of the Sacramento Motor Car Dealers Association have announced the adoption of the Windsor Plan of handling the used car situation.

Maryland Studies Insurance on Cars

BALTIMORE, Sept. 21—A commission to study compulsory automobile insurance and other methods of protecting those injured or sustaining property loss due to motor vehicles, has been appointed by Gov. Albert C. Ritchie, of Maryland. The commission was authorized by the last session of the General Assembly after that body had refused to pass any of the several compulsory automobile insurance bills introduced.

C. Harry Reeves, of C. H. Reeves & Co., Inc., Baltimore distributor of the Pierce-Arrow, is a member of the commission. He represents the automobile industry on the body.

The commission will make its report to the governor and to the General Assembly which meets in January, 1929.

At the same time this commission was appointed the governor appointed another to make an investigation of the general problem of motor vehicle accidents, including the "hit-and-run" evil, and also report to the General Assembly. A. H. Bishop, president of the Baltimore Automobile Trade Association, Inc., is a member of this body.

Will Sell Cole Plant

INDIANAPOLIS, Sept. 19—The plant of the former Cole Motor Car Co. will be offered as a whole and in two parcels at an auction sale at 10 A. M., Sept. 28. Bidders will be required to deposit \$15,000 on bids for either parcel and \$30,000 on a bid for the whole.

Calendar of Coming Events

SHOWS

American Electric Railway Association, Public Auditorium, Cleveland, Oct. 1-7
American Road Builders Association, Public Auditorium, Cleveland, Jan. 9-13
Argentine Nov. 10-20
Automotive Accessories Association, Armory, Chicago Nov. 7-12
Automotive Equipment Association, Coliseum, Chicago Nov. 7-12
Boston, Aviation and Radio Exposition Sept. 26-Oct. 1
*Chicago, National Automobile Chamber of Commerce, Coliseum Jan. 28-Feb. 4
Electrical and Industrial Show, Grand Central Palace, New York, Oct. 12-22
Glasgow Nov. 4-12
International Aircraft Show, Berlin March 23-April 11
Lille, France, Exposition, Nov. 20-Dec. 4
London Passenger Car Show, Oct. 14-22
London Truck Show Nov. 17-26
Montevideo Nov. 19-27
National Standard Parts Association, Convention Hall, Cleveland, Nov. 14-18
*New York, National Automobile Chamber of Commerce, Grand Central Palace Jan. 7-14
Paris, Grand Palais Oct. 6-16
Rio de Janeiro May 3-13
Salon, Automobile Salon, Inc., Hotel Drake, Chicago Jan. 28-Feb. 4
Salon, Automobile Salon, Inc., Hotel Biltmore, Los Angeles Feb. 11-18
Salon, Automobile Salon, Inc., Hotel Commodore, New York, Nov. 27-Dec. 3
Salon, Automobile Salon, Inc., Palace Hotel, San Francisco, Feb. 25-March 3
United States Good Roads Show, Des Moines May 28-June 1

* Will have special shop equipment exhibit.

CONVENTIONS

American Electric Railway Association, Public Auditorium, Cleveland, Oct. 3-7
American Gear Manufacturers Association, Mt. Royal Hotel, Montreal Oct. 20-22
American Road Builders' Assn., Hotel Hollenden, Cleveland Jan. 9-13
American Road Builders' Association, Banquet, Hollenden Hotel, Cleveland Jan. 11
American Society of Mechanical Engineers, First National Fuels Meeting, St. Louis Oct. 10-13
Associated Manufacturers of Fabric Auto Equipment, La Salle Hotel, Chicago Nov. 5
Automotive Equipment Association, Coliseum, Chicago Nov. 7-12
Aviation Conference, Hotel Statler, Boston Sept. 30
National Association of Finance Companies, Congress Hotel, Chicago Nov. 14-15
National Battery Manufacturers Ass'n, Hotel Niagara, Niagara Falls Sept. 29-30
National Foreign Trade Council, Houston, Texas April 25-27
National Hardware Association, Marlborough-Blenheim, Atlantic City Oct. 17-20
National Research Council, Washington, D. C. Dec. 1-2
National Safety Council, Stevens Hotel, Chicago Sept. 26-30
National Standard Parts Association, Hotel Hollenden, Cleveland, Nov. 14-18
National Tire Dealers' Association, Brown Hotel, Louisville, Ky., Nov. 15-17
Overseas Automotive Club, Inc., Monthly Luncheon, Hotel Astor, New York Oct. 13

Overseas Automotive Club, Inc., Overseas Visitors' Dinner, Stevens Hotel, Chicago Nov. 9
Overseas Automotive Club, Inc., Monthly Luncheon, Hotel Astor, New York Dec. 8
United States Good Roads Association and Bankhead National Highway Association, Des Moines, May 28-June 1
World Motor Transport Congress, London Nov. 14-17

N. A. D. A.

Chicago, Jan. 31-Feb. 2—Annual, Palmer House.
Chicago, Feb. 1—Banquet, Palmer House.
New York, Jan. 9-10—Eastern District, Hotel Commodore.

S. A. E.

National

Aberdeen Proving Ground, Oct. 6—Joint meeting with Army Ordnance Association.
Chicago, October 25-27—National Transportation and Service Meeting.
Chicago, Dec. 1—Tractor Meeting.
Detroit, Jan. 24-27—Annual Meeting.
New York Sessions, October 18-20—Aeronautic Meeting.
New York, Jan. 12—Annual Dinner.

Sectional

Milwaukee, Oct. 5—First Meeting.

RACE

British Grand Prix, Brooklands, Oct. 1